

July 24, 1998

Mr. Oliver D. Kingsley
President, Nuclear Generation Group
Commonwealth Edison Company
ATTN: Regulatory Services
Executive Towers West III
1400 Opus Place, Suite 500
Downers Grove, IL 60515

SUBJECT: LASALLE INSPECTION REPORT 50-373/98015(DRP); 50-374/98015(DRP) AND
NOTICE OF VIOLATION

Dear Mr. Kingsley:

On July 21, 1998, the NRC completed a Restart Readiness Assessment Team Inspection at your LaSalle facility. The focus of the inspection was to evaluate the capability of plant personnel to safely operate the plant, the adequacy of plant material condition, and the ability of your staff to accurately assess plant and personnel performance. The inspection also included a review of activities implemented in accordance with your LaSalle Restart Action Plan. During the inspection, the team conducted 72 hours of continuous observations of operations personnel in the control room and other areas of the plant. The team also observed maintenance and surveillance activities, performed plant system walkdowns, and evaluated problems and associated corrective actions identified by various oversight organizations.

Through observation of routine operating, maintenance, and testing activities, the team concluded that shift turnovers, procedural adequacy and adherence, communications, log keeping, knowledge and awareness of equipment status, and control of plant activities were adequate. Additionally, we noted that the vast majority of surveillance test activities reviewed were properly implemented. Extensive actions to address earlier human performance weaknesses resulted in improved performance. This was accomplished, in part, by extensive management involvement and ensuring that plant personnel fully understood performance expectations. While the team concluded that plant personnel were capable of safely operating the plant, human performance errors that continue to occur, though of minor consequence, indicate that continued management focus is necessary to ensure that the positive improvement trend continues. We note that your own assessments reflect a similar concern and that you continue to take actions aimed at sustained improvement in the human performance area.

The overall material condition of Unit 1 was good as indicated by system walkdowns. The inspectors reviewed several of the modifications implemented during the extended outage to improve plant material condition and found the modifications to be properly designed, installed, and tested.

During the inspection, your staff demonstrated the ability to accurately assess plant performance. For example, the Integrated Operations Performance Review Process was effective in observing, identifying, and correcting performance that did not meet station standards. In addition, the Restart Issues Review Committee and the Corporate Nuclear Review Board were effective in

assessing station performance and recognizing areas that required additional station management attention.

Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding the violation are described in detail in the enclosed inspection report. The violation is of concern because it resulted in the failure to cycle valves in the fire protection system to ensure that they would operate when required.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be placed in the NRC Public Document Room.

Sincerely,

Original signed by

Geoffrey E. Grant, Director
Division of Reactor Projects

Docket Nos.: 50-373; 50-374
License Nos.: NPF-11, NPF-18

Enclosures: 1. Notice of Violation
 2. Inspection Report 50-373/98015(DRP);
 50-374/98015(DRP)

See Attached Distribution

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T. O'Connor, Station Manager
P. Barnes, Regulatory Assurance
Supervisor
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Office of the Attorney General
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NOTICE OF VIOLATION

Commonwealth Edison Company
LaSalle County Station, Unit 1

Docket Nos.: 50-373
License Nos.: NPF-11

During an NRC inspection conducted on July 6-21, 1998, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

Technical Specification 4.7.5.2.b requires for each deluge and sprinkler system in Table 3.7.5.2-1, that operability be demonstrated at least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

Technical Specification Table 3.7.5.2-1 listed the deluge and sprinkler system that supply water for fire suppression to the control room and auxiliary electric equipment room ventilation systems as systems that must be tested for operability at least once per 12 months.

Contrary to the above, as of July 17, 1998, testable valves 1FP-160A, 1FP-160B, 1FP-161, 1FP-236, and 1FP-234 in the fire protection system lines that supply fire suppression water to the control room and auxiliary electric equipment room ventilation systems had not been cycled in the preceding 12 months.

This is a Severity Level IV violation (Supplement I) (50-373/98015-02).

Pursuant to the provisions of 10 CFR 2.201, Commonwealth Edison Company is hereby required to submit a written statement of explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region III, and a copy to the NRC Resident Inspector at the LaSalle facility, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in

detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Dated at Lisle, Illinois
this 24th day of July, 1998

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-373; 50-374
License No: NPF-11; NPF-18

Report No: 50-373/98015(DRP); 50-374/98015(DRP)

Licensee: Commonwealth Edison Company

Facility: LaSalle County Station, Unit 1

Location: 2601 N. 21st Road
Marseilles, IL 61341

Dates: July 6 - 21, 1998

Inspectors: A. Vogel, Team Leader
C. Phillips, Senior Resident Inspector, Braidwood
K. Zellers, Resident Inspector, Davis-Besse
J. Maynen, Resident Inspector, DC Cook
J. Jacobson, Resident Inspector, Paducah
E. Duncan, Reactor Inspector, RIII
G. Larizza, Operator Licensing Inspector, RIII
P. Krohn, Resident Inspector, Prairie Island
M. Holmberg, Reactor Inspector, RIII
D. Muller, Operator Licensing Inspector, RIII
R. Winter, Reactor Inspector, RIII

Approved by: Melvyn Leach, Team Manager
Operator Licensing Branch, DRS

EXECUTIVE SUMMARY
LaSalle County Station, Units 1 & 2
NRC Inspection Report 50-373/98015; 50-374/98015

The Restart Readiness Assessment Team Inspection evaluated the readiness of plant hardware, plant staff and management programs to support a safe restart and continued operation of LaSalle Unit 1. During this 2-week inspection period, which included a period where 72 hours of continuous control room observations were conducted, the team evaluated activities in the operations, maintenance, and engineering performance areas. Based on the results of these reviews the team concluded that:

Plant Operations

- The operating shift staffing met the requirements of Technical Specifications and administrative procedures. The team noted that the licensee required a substantial amount of operator overtime to complete complex plant evolutions. Licensee management had implemented adequate procedures to limit and control overtime usage. (Section O1.1)
- The implementation of actions delineated by Action Step 4.0 of licensee Restart Action Plan 1.1A was effective. Based on a review of the administrative procedures and logged events, the standards and implementation of control room and in-plant log keeping were adequate. NRC Restart Action Plan 0350 Item C.3.3.g, "Log Keeping Practices," is closed. (Section O1.2)
- The conduct of operations crew shift turnovers was adequate. The team observed several shift turnovers which were consistently conducted in a formal manner and in accordance with operating procedures. The communication of plant status, planned evolutions, priorities, and expectations during shift turnover and shift briefings was adequate. However, the practice of excluding the unit supervisor and nuclear station operators from the shift briefing contributed to an operating crew inadvertently pumping potentially contaminated liquid waste from the turbine building fire sump to the clean waste water treatment system. (Section O1.3)
- The implementation of actions delineated by Action Steps 3.0, 5.0, 7.0, 8.0, 9.0, 10.0, 11.0, and 12.0 of licensee Restart Action Plan 1.1A was effective. Operator communications, control of on-shift duties, plant operator control board awareness and the process of controlling plant status to identify the operability of safety-related systems and components were adequate. The operating crews conducted thorough and effective pre-job briefs, responded appropriately to annunciators, and operator panel walkdowns identified trends and abnormal conditions. However, several events occurred involving inadequate equipment control due to human performance issues. Licensee management was aware of the problems and was implementing corrective actions. NRC Restart Action Plan 0350 Item C.3.3.b, "Level of Formality in the Control Room," and Item C.3.3.d, "Control Room/Plant Operator Awareness of Equipment Status," are closed. (Section O1.4)
- The implementation of actions delineated by Action Steps 2.0, 2.1, and 2.2 of licensee Restart Action Plan 1.1C was effective. Station administrative procedures appeared adequate to maintain configuration control after initial system lineup and operation. A walkdown of the low pressure core spray system indicated that administrative procedures controlling system configuration were adequately implemented. The licensee system

lineup schedule indicated that all safety-related systems would be properly aligned prior to Unit 1 startup. However, human performance errors resulted in the issuance of an incorrect out-of-service. NRC Restart Action Plan 0350 Item C.4.d, "Adequacy of System Lineups," is closed. (Section O2.1)

- Equipment deficiencies were properly controlled and degraded equipment was adequately scheduled and tracked for repair. (Section O2.2)
- The implementation of actions delineated by Action Step 2.0 of licensee Restart Action Plan 2.1, Action Steps 1.1, 1.2, 1.3, and 9.0 of licensee Restart Action Plan 1.3C, and Action Steps 2.0 and 6.0 of licensee Restart Action Plan 1.1A was effective. Station management communicated expectations to station personnel, and station personnel were knowledgeable of management's expectations regarding procedure adherence. Station personnel adhered to procedural requirements. No deficiencies regarding procedure adequacy were identified. NRC Restart Action Plan 0350 Items C.2.2.b, "Demonstrated Expectation of Adherence to Procedures"; C.3.3.e, "Adequacy of Plant Operating Procedures"; C.3.1.k, "Procedure Usage/Adherence"; and C.3.3.f, "Procedure Usage/Adherence," are closed. (Section O3.1)
- The licensee conducted operator training at an acceptable level to provide operators with the skill and knowledge necessary to operate systems modified during the Unit 1 outage. (Section O5.1)
- The Integrated Operations Performance Review process was effective in observing, identifying, and correcting performance that did not meet station standards. The conclusion was based on a review of previous evolution observation summaries and observed performance during the Unit 1 drywell pressurization test. (Section O7.1)
- The licensee developed an adequate power ascension plan for Unit 1 restart. Testing, staffing, procedures, management review and oversight, and a process for problem resolution were adequately identified within the plan. NRC Restart Action Plan 0350 Item C.4.g, "Adequacy of the Power Ascension Testing Program," is closed. (Section O7.2)
- The Operations Restart Readiness Assessment was comprehensive and accurately identified the performance areas needing improvement and corrective actions. The Restart Issues Review Committee and Corporate Nuclear Review Board reviews of the restart readiness assessment were effective in assessing station performance and recognizing areas that required additional station management attention. NRC Restart Action Plan 0350 Item B.4.5.a, "Evaluate Licensee's Restart Readiness Self-Assessment," is closed for the operations area. (Section O7.3)

Maintenance

- Observed maintenance activities were performed in accordance with the applicable work package instructions and maintenance department standards. The team also concluded, based on direct observation, that maintenance workers demonstrated conservative decision-making when confronted with an unexpected situation. (Section M1.1)
- The quality of completed maintenance activities was adequate. Performance monitoring of the reactor core isolation cooling (RCIC) and control room ventilation (VC) systems as

required by the Maintenance Rule was verified to be adequate, and the licensee had taken adequate measures to improve VC and RCIC system performance. Additionally, a higher sensitivity to rework among the maintenance workers and the increased use of peer checking resulted in a lower rework rate. (Section M1.2)

- The material condition of Unit 1 was good as indicated by system walkdowns, plant walkdowns, and document reviews. A number of material condition and housekeeping deficiencies were identified. However, these deficiencies were relatively minor in nature. In addition, the team reviewed deficiencies that had been identified for resolution and verified that none of the deficiencies reviewed were safety significant or collectively represented a concern for system startup and operation. (Section M2.1)
- The implementation of actions delineated by Action Steps 1.1, 1.2, and 1.3 of licensee Restart Action Plan 1.3C was effective. In particular, the team considered the changes made by the licensee to surveillance test and startup procedures technically appropriate and adequate to support plant restart. However, the team identified four errors that indicated lapses in attention-to-detail and ineffective review and maintenance of completed surveillance test data. Additionally, an unanticipated response identified during a smoke detector surveillance test was not entered into the corrective action process. Overall, the licensee's surveillance testing program was adequate. NRC Restart Action Plan 0350 Item C.4.e, "Adequacy of Surveillance Tests/Test Program," is closed. (Section M2.2)
- Work package quality was adequate to support the planned maintenance activities. However, two deficiencies were identified regarding the use of work package quality feedback forms and maintenance worker knowledge of the increased responsibility during priority work. (Section M3.1)
- The Maintenance Restart Readiness Assessments were comprehensive and accurately identified the performance areas needing improvement and corrective actions. The issues which were identified as a result of the self-assessments were appropriately categorized, and the corrective actions planned or implemented appeared adequate. The Restart Issues Review Committee and Corporate Nuclear Review Board reviews of the restart readiness assessment were effective in assessing station performance and recognizing areas that required additional station management attention. NRC Restart Action Plan 0350 Item B.4.5.a, "Evaluate Licensee's Restart Readiness Self-Assessment," is closed for the maintenance area. (Section M7.1)

Engineering

- Overall, the modifications reviewed were properly designed, installed, and tested. In particular, the team considered the modifications reviewed for the control room ventilation, auxiliary electric equipment room ventilation, and residual heat removal systems to provide good technical resolution of the original construction deficiencies in these systems. (Section E1.1)
- The operability evaluations reviewed were of good quality and provided adequate technical justification for the conclusions. (Section E1.2)
- The implementation of actions delineated by Action Steps 3.1, 3.2, and 3.3 of licensee Restart Action Plan 1.1C was effective. The latest surveillance test results for the control

room ventilation system and auxiliary electric equipment room ventilation system demonstrated that the operational performance exceeded Technical Specification acceptance criteria. NRC Restart Action Plan 0350 Item C.4.a, "Operability of Technical Specification Systems," is closed. (Section E2.1)

- The implementation of actions delineated by Action Step 11.0 of licensee Restart Action Plan 1.2A was effective. The operator workaround backlog had been reduced significantly and did not contain any items which represented restart issues. NRC Restart Action Plan 0350 Item C.4.b, "Operability of Required Secondary and Support Systems," is closed. (Section E2.2)
- The implementation of actions delineated by Action Steps 2.1, 2.2, and 2.4.3 of licensee Restart Action Plan 3.1 was effective. The implementation of the system functional performance review program was particularly good. One violation of Technical Specifications was identified pertaining to the annual cycling of testable valves in fire protection train flow paths. The licensee was effectively controlling the engineering request backlog. NRC Restart Action Plan 0350 Item C.4.f, "Significant Hardware Issues Resolved," is closed. (Section E2.3)
- The implementation of the actions delineated by Action Step 9.0 of licensee Restart Action Plan 4.2 was effective. Also, the implementation of the System Readiness Review Board (SRRB) was effective. In particular, the SRRB members challenged the information presented on a number of occasions to ensure that decisions regarding the deferral and inclusion of items in Unit 1 forced outage L1F35 were appropriate. NRC Restart Action Plan 0350 Item C.2.3.c, "Adequate Engineering Support as Demonstrated by Timely Resolution of Issues," is closed. (Section E2.5)
- The engineering department response to an emergent problem regarding the susceptibility of radiation monitor power supplies to voltage surges was effective. (Section E2.6)
- The Engineering Restart Readiness Assessment was comprehensive and accurately identified the performance areas needing improvement and corrective actions. The issues which were identified as a result of the self-assessments were appropriately categorized, and the corrective actions planned or implemented appeared adequate. The Restart Issues Review Committee and Corporate Nuclear Review Board reviews of the restart readiness assessment were effective in assessing station performance and recognizing areas that required additional station management attention. NRC Restart Action Plan 0350 Item B.4.5.a, "Evaluate Licensee's Restart Readiness Self-Assessment," is closed for the engineering area. (Section E7.1)

Report Details

Summary of Plant Status

During this inspection period, the licensee maintained Unit 1 in cold shutdown (Operational Condition 4) in support of outage activities and final surveillance tests which were required to be completed prior to restart.

I. Operations

O1 Conduct of Operations

O1.1 Shift Staffing

a. Inspection Scope (71707)

The team verified that the operating crew staffing and overtime were controlled in accordance with Technical Specification (TS) 6.1; LaSalle Administrative Procedure (LAP) 200-2, "Conduct of Operations, Operations Shift Complement and Functions," Revision 4; LAP-100-17, "Overtime Control for Personnel Performing Work at LaSalle Station," Revision 4; and Attachment A of LAP-200-17, "Overtime Deviation Authorization Form," initiated for operations personnel for the week of July 6, 1998.

b. Observations and Findings

The team made 31 separate observations involving shift staffing. The operating crews met the TS control room staffing requirements at all times. Licensed personnel were added as necessary to the shifts during several complex evolutions such as the Unit 1 drywell pressure test.

The team noted that during the first week of the inspection, operators performed substantial amounts of overtime. For the week of July 6, 1998, 14 percent of the operators exceeded 72-work hours. Technical Specification 6.1.6.7 stated, in part, that the amount of overtime worked by unit staff members performing safety-related functions shall be limited and controlled in accordance with the NRC Policy Statement on Working Hours (Generic Letter 81-12). Administrative Procedure LAP-100-17, "Overtime Controls for Personnel Performing Work at LaSalle Station," Revision 11, Step B.4.6.3, stated, "Individuals should not be scheduled for more than 72 hours a week." Step B.4.7 stated that deviations from the limits specified in Section B.4.6 shall be approved in advance. The team verified that all operator overtime in excess of 72 hours was approved by plant management. The licensee identified that in two cases, the approval was made after the operator had worked the overtime. The failure to approve operator overtime in advance constitutes a violation of minor significance and is not subject to formal enforcement action.

c. Conclusions

The operating shift staffing met the requirements of Technical Specifications and administrative procedures. The team noted that the licensee required a substantial amount

of operator overtime to complete complex plant evolutions. Licensee management had implemented adequate procedures to limit and control overtime usage.

O1.2 Review of NRC Restart Action Plan 0350 Item C.3.3.g. "Log Keeping Practices"

a. Inspection Scope (71707)

The team reviewed NRC Restart Action Plan 0350 Item C.3.3.g, "Log Keeping Practices," regarding the operator logs for completeness, legibility and conformance with expectations.

b. Observation and Findings

b.1 Documented Licensee Actions

The team reviewed the following documented information regarding operator logs for Action Step 4.0 of licensee Restart Action Plan 1.1A:

b.1.1 Restart Action Plan 1.1A - Improve Operator Performance

Restart Action Plan 1.1A was established to improve operator and supervisor professionalism and ability to sustain safe plant operation through specific oversight actions using criteria that is consistent with both performance expectations and training activities.

b.1.2 Action Step 4.0 - Monitor Operator Logs

This action step specifically required the determination of causes for inadequate or incomplete operator logs and the initiation of corrective actions. In March 1997, the licensee commenced observations of control room logs. Deficiencies in completeness and accuracy were noted by operations management personnel. The majority of the weaknesses were a result of personnel not fully understanding the expectations associated with the log process. Operations management re-emphasized the expectation that log entries provide a detailed accurate account of all events occurring in the plant and held crew management responsible for ensuring satisfactory results.

b.2 Team Review of Documented Licensee Actions

The team reviewed LAP-200-5, "Conduct of Operations - Shift Records," Revision 9, and 2 weeks of control room operators logs. The team made 25 separate observations involving log keeping, both in the field and in the control room, to verify that the standards and implementation of log keeping were adequate. The logs were maintained at a level of detail that allowed reconstruction of shift activities. Non-licensed operator logs were verified to contain the correct TS values. The team observed that the logs were kept and maintained in accordance with the licensee's administrative procedures with only minor deficiencies identified. For example, LAP-200-5, Step B.2.2.4, stated that Limiting Condition for Operation (LCO) time clocks are divided into two categories: short duration and long duration. Short duration time clocks less than the remainder of the shift were required to be logged on Attachment H, "Short Duration Time Clocks." The team observed that for the period of June 30 to July 8, 1998, short duration time clocks were in the Unit 1 log, but not logged on Attachment H. This procedure violation constitutes a violation of minor significance and is not subject to formal enforcement action.

c. Conclusions

The implementation of actions delineated by Action Step 4.0 of licensee Restart Action Plan 1.1A was effective. Based on a review of the administrative procedures and logged events, the standards and implementation of control room and in-plant log keeping were adequate. NRC Restart Action Plan 0350 Item C.3.3.g, "Log Keeping Practices," is closed.

O1.3 Shift Turnover

a. Inspection Scope (71707)

The team observed the licensee's shift turnover practices. In addition, a review was conducted of LAP-200-3, "Conduct of Operations," Revision 31, regarding the licensee's shift turnover practices.

b. Observations and Findings

The shift turnovers that were observed consisted of three major elements: log reviews, panel walkdowns, and a shift brief. Panel walkdowns were conducted jointly by offgoing and oncoming shift personnel. During the walkdowns, the status of plant equipment and planned evolutions were discussed. Plant status and planned evolutions were also provided in shift turnover data sheets.

Immediately following shift turnover, a shift brief was conducted with operating shift personnel. This brief consisted of a series of discussions concerning current plant status and planned evolutions, with each shift member presenting a portion of the overall brief. In addition, the shift manager (SM) provided expectations and priorities for the shift. This brief included all the members of the current operating shift, with the exception of the unit supervisor (US), the Unit 1 nuclear station operator (NSO), and the Unit 2 NSO, who were stationed in the control room. The team identified that the practice of excluding some members of the control room staff contributed to an operating crew inadvertently pumping potentially contaminated liquid waste from the turbine building fire sump to the clean waste water treatment system. This item is further discussed in Section O1.4. Senior operations management stated that the practice of not having the US and the NSO attend the shift briefing would be reviewed.

c. Conclusions

The conduct of operations crew shift turnovers was adequate. The team observed several shift turnovers which were consistently conducted in a formal manner and in accordance with operating procedures. The communication of plant status, planned evolutions, priorities, and expectations during shift turnover and shift briefings was adequate. However, the practice of excluding the unit supervisor and nuclear station operators from the shift briefing contributed to an operating crew inadvertently pumping potentially contaminated liquid waste from the turbine building fire sump to the clean waste water treatment system.

O1.4 Review of NRC Restart Action Plan 0350 Item C.3.3.b, "Control Room Formality," and C.3.3.d, "Control Room/Plant Operator Awareness of Equipment Status"

a. Inspection Scope (71707)

The team reviewed NRC Restart Action Plan 0350 Item C.3.3.b, regarding the level of formality in the control room and Item C.3.3.d regarding control room/plant operator awareness of equipment status.

b. Observations and Findings

b.1 Documented Licensee Actions

The team reviewed the following documented information regarding the level of formality in the control room and operator awareness of equipment status for Action Steps 3.0, 5.0, 7.0, 8.0, 9.0, 10.0, 11.0, and 12.0 of licensee Restart Action Plan 1.1A:

b.1.1 Action Plan 1.1A - Improve Operator Performance

Licensee Restart Action Plan 1.1A was established to improve operator and supervisor professionalism and the ability to sustain safe plant operation through specific oversight actions using criteria consistent with both performance expectations and training activities.

b.1.2 Action Step 3.0 - Monitor Operator Rounds

The purpose of this action step was to monitor non-licensed operator (NLO) rounds by shift managers and field supervisors. The licensee began monitoring NLO rounds in March 1997. Licensee observations included monitoring performance of all areas of operators rounds, asking questions related to the rounds, and providing direct feedback to the individuals. The initial results indicated that errors involving operators not being able to complete their rounds on time were often due to additional work and administrative burdens being placed on them during the performance of their duties. As a result of these observations, actions were taken that included the implementation of the Conduct of Operations Manual, development of an equipment status sheet to be used by operators during turnover, and a review and upgrade to LAP-100-45, "Operator Rounds."

b.1.3 Action Step 5.0 - Monitor Out-of-Service (OOS) Problems

The purpose of this action step was to monitor OOS problems. The licensee began monitoring the OOS process beginning in March 1997. A number of deficiencies were identified in the OOS area, such as hanging OOS cards on the wrong unit or wrong component. Corrective actions implemented to address identified deficiencies included the review and upgrade of the OOS procedure, and heightened awareness by operations personnel regarding the importance of this program.

b.1.4 Action Step 7.0 - Monitor Main Control Room Communications

The purpose of this action step was to monitor for direct, three-way communication in the control room and the plant, to document findings, determine causes for inaccurate communication and initiate corrective actions. Licensee observations revealed that weaknesses were caused by inadequate information transfer during shift or job turnover. Department and crew management re-emphasized communications-related expectations.

b.1.5 Action Step 8.0 - Monitor NSO Alarm Response

The purpose of this action step was to monitor NSO alarm responses. Observations revealed weaknesses in understanding management expectations regarding the “three legged” communication during annunciator response. Management communicated expectations regarding alarm responses to operations personnel during shift briefing, observations, and departmental meetings. These expectations included prompt alarm response, formal, “three legged” communication, and correct use of the appropriate alarm response procedures. These expectations were re-enforced during subsequent simulator training.

b.1.6 Action Step 9.0 and 10.0 - Monitor Pre-Shift Briefings and Monitor Pre-Job Briefs/Heightened Level of Awareness (HLA) Briefs

The purpose of these action steps was to monitor briefs. The program included monitoring by evaluating and identifying weaknesses, enforcing expectations, and providing feedback to personnel. Guidance to shift managers and their crews was provided during meetings and followed up by observing subsequent evolutions with direct feedback to operations personnel regarding expectations.

b.1.7 Action Step 11.0 and 12.0 - Monitor US and NSO Turnovers and Monitor NLO Turnovers

The purpose of these action steps was to monitor US, NSO, and NLO turnovers. Weaknesses observed by the licensee included insufficient depth of turnover information and informal communications. Corrective actions taken in response to these weaknesses included reinforcement of management expectations and coaching to upgrade personnel on effective turnover practices.

b.2 Team Review of Documented Licensee Actions

The team independently reviewed these action steps through a review of documentation and observation of the above listed operator performance attributes. In addition, the team reviewed LAP-200-3, “Conduct of Operations,” Revision 31; LAP-200-11, “Conduct of Operations-Nuclear Operations Division-Operations Department Standards,” Revision 2; and LAP-100-37, “Station Communication,” Revision 3. The team made 31 separate control room observations which included assessments of shift turnovers, operator training/knowledge, level of formality in the control room, awareness of equipment status, control room communications, equipment control, procedure adequacy, procedure usage/adherence, operator rounds, and on-shift command and control.

b.2.1 Control Room Formality

The team observed, with few exceptions, that the control room atmosphere was maintained at a level consistent with operations management standards. Control room communications were effective, instructions were acknowledged, and receipt of instructions were verified. The NSO alarm responses and the ensuing communication and feedback with the US were consistent. On two occasions, the team observed lapses in formal communication between control room operators when unexpected conditions occurred during complex evolutions. In both cases, the licensee took corrective action.

b.2.2 Operator Awareness of Equipment Status

The team monitored licensed operator performance in the control room and made the following observations:

- Prior to the conduct of evolutions, thorough and effective HLA briefings were conducted.
- Operators responded to annunciators and alarms in accordance with applicable standards and procedures.
- Operator panel walkdowns were effective in identifying trends and abnormal conditions.

The team monitored NLOs during their rounds. The entries in the NLO logs were accurate and complete. Operators were cognizant of trends and were effective in implementing appropriate corrective actions. They communicated well with the control room prior to performing tests which caused alarms in the control room. The team also noted that NLOs demonstrated good equipment awareness through turnovers, good communications, and identifying expected alarms prior to evolutions.

In addition, as discussed in Section O2.1 and O3.1 of this report, equipment control procedures were adequate to ensure positive control of plant equipment. However, due to human performance issues, the team observed instances of inadequate operator control of equipment configuration. The team observed that an NSO operated the wrong equipment by placing the reactor building exhaust fan control switch into the pull-to-lock position when he was instructed to place the reactor building supply fan control switch into the pull-to-lock position. The team noted on one occasion that an NSO and an NLO were not aware of each other's actions during the drywell depressurization. The NSO secured the depressurization by shutting a valve from the control room while the NLO was trying to control the depressurization rate by throttling a different valve in the field. On another occasion, the team noted that the US and NSO became aware that the turbine building fire sump pumps were turned off only after the sump high level alarm sounded. Consequently, the pumps were turned on and potentially contaminated liquid was pumped to the clean water treatment system. The sump was quarantined because some potentially contaminated water had been drained to the sump. On another occasion an unexpected alarm revealed that the condensate polisher outlet conductivity cell was isolated. Licensee management was aware of problems with human performance and had taken or planned corrective actions.

c. Conclusions

The implementation of actions delineated by Action Steps 3.0, 5.0, 7.0, 8.0, 9.0, 10.0, 11.0, and 12.0 of licensee Restart Action Plan 1.1A was effective. Operator communications, control of on-shift duties, plant operator control board awareness and the process of controlling plant status to identify the operability of safety-related systems and components were adequate. The operating crews conducted thorough and effective pre-job briefs, responded appropriately to annunciators, and operator panel walkdowns identified trends and abnormal conditions. However, several events occurred involving inadequate equipment control due to human performance issues. Licensee management was aware

of the problems and was implementing corrective actions. NRC Restart Action Plan 0350 Item C.3.3.b, "Level of Formality in the Control Room," and Item C.3.3.d, "Control Room/Plant Operator Awareness of Equipment Status," are closed.

O2 Operational Status of Facilities and Equipment

O2.1 Review of NRC Restart Action Plan 0350 Item C.4.d, "System Lineups"

a. Inspection Scope (71707)

The team reviewed NRC Restart Action Plan 0350 Item C.4.d, regarding the adequacy of system lineups.

b. Observations and Findings

b.1 Documented Licensee Actions

The team reviewed the following documented information regarding system lineups for Action Steps 2.0, 2.1, and 2.2 of licensee Restart Action Plan 1.1C:

b.1.1 Action Step 2.0 - Equipment Lineup Verification.

The purpose of this action step was to determine and verify the configuration of plant systems to ensure that Unit 1 was ready for restart. The station first created an electronic database system that contained the shutdown lineups for all plant mechanical and electrical systems.

b.1.2 Action Step 2.1 - Identify Key System Lineups

The purpose of this action step was to determine the key systems that would have lineup checklists performed on them. Additionally, the licensee created surveillances to audit the station OOS program to resolve potential deficiencies. Also, the licensee modified the master startup checklist to check that required equipment was not OOS prior to unit startup. The licensee identified about 250 electrical and mechanical checklists that would be performed to support Unit 1 startup.

b.1.3 Action Step 2.2 - Perform Lineups and Update Electronic Database

This action step involved the use of the system electrical and mechanical checklists that were to be generated by the electronic database to perform walkdowns of system lineups in the field.

b.2 Team Review of Documented Licensee Actions

The team independently reviewed portions of these action steps, and identified the following:

The team verified that all Unit 1 safety-related equipment had equipment lineup checklists. The licensee planned to complete these lineups prior to Unit 1 restart through the completion of LaSalle General Procedure (LGP) 1-S3, "Pre-Startup Line-up Check Off

List." In addition, the licensee planned to perform complete lineup checklists for systems that had questionable configurations. Those systems or valves that were not to be lined up were a part of Unit 2, or had reasonable explanations for the system or valves not requiring system lineup.

The team reviewed the electronic database for the system lineups and determined that it was up-to-date and that it provided an effective method to track the status of valve lineups. The team performed configuration walkdowns of the low pressure core spray (LPCS) system. No deficiencies were identified.

b.3 Team Review of Selected Procedures

The team reviewed selected configuration control procedures. The following was identified:

LAP-200-3, "Conduct of Operations - Shift Operations"

The team reviewed the key control and locked valve sections of LAP-200-3 and determined that these sections provided adequate controls over the use of station keys and locked valves. In addition, LGP-1-S1, "Master Startup Checklist," required a key audit prior to Unit 1 startup. The team observed locked valves during a walkdown of the LPCS system and determined that the station was implementing the procedure adequately. Additionally, the team reviewed various startup checklists and determined that valves that were required to be locked were designated as locked on the startup checklists.

LAP-100-30, "Independent Verification"

The team reviewed this procedure and determined that it provided adequate guidance regarding independent verification of valve positions, lifted wires, breaker positions, and circuit alterations. The team verified that independent verifications were adequately documented. However, an inconsistency in the guidance provided to operators in checking the position of valves was identified in LAP-200-4, "Conduct of Operations Plant Operating Procedures." Step B.5.6.6 indicated that an acceptable alternate method to check the position of a manual valve was to rotate the handwheel in the open direction. This guidance conflicted with LAP-100-30, which stated to "always" verify valve position to the closed direction. Licensee management initiated a procedure change request for LAP-200-4 to eliminate the alternate method to check the position of a manual valve in the open direction.

LAP-200-4, "Conduct of Operations Plant Operating Procedures"

This procedure described the administrative requirements for performing the station electronic checklist program. These electronic checklists determined the proper lineup for systems so that the system lineup procedure would be usable. The team determined that it provided adequate guidance to ensure that the electronic checklists were performed and documented properly. The team sampled a completed checklist and determined that it was adequately performed.

LAP 900-4A-H, - Equipment OOS Program Procedure

This procedure provided comprehensive guidance to operators that explained station management expectations for the conduct of the OOS program. It provided administrative requirements that if executed properly, provided several barriers of protection to ensure the authorized removal of equipment from service, and that OOS boundaries were adequate to protect equipment and personnel. The team sampled OOS documentation and tags with no discrepancies noted.

However, the licensee determined that during the inspection period, despite the multiple administrative barriers, human performance errors resulted in the issuance of a Unit 2 stator cooling water OOS for maintenance on Unit 1. No maintenance was performed because a cognizant maintenance supervisor discovered the error during a walkdown of the OOS prior to commencing work. This event is discussed in more detail in NRC Inspection Report 50-373/98011; 50-374/98011.

LAP-900-12, "Caution Card Procedure"

The team determined that this procedure provided adequate guidance to station personnel to ensure that station management expectations pertaining to the hanging of equipment information cards were met. The team sampled the implementation of caution cards and determined that the program was adequately implemented.

c. Conclusions

The implementation of actions delineated by Action Steps 2.0, 2.1, and 2.2 of licensee Restart Action Plan 1.1C was effective. Station administrative procedures appeared adequate to maintain configuration control after initial system lineup and operation. A walkdown of the LPCS system indicated that administrative procedures controlling system configuration were adequately implemented. The licensee's system lineup schedule indicated that all safety-related systems would be properly aligned prior to Unit 1 startup. However, human performance errors resulted in the issuance of an incorrect OOS. NRC Restart Action Plan 0350 Item C.4.d, "Adequacy of System Lineups," is closed.

O2.2 Equipment Deficiencies

a. Inspection Scope (71707)

The team assessed outstanding control room and plant equipment deficiencies. The team reviewed the Unit 1 inoperable/degraded equipment item list and existing operator workarounds. The team directly observed operator activities to determine the ability of the plant staff to identify, prioritize, and resolve plant deficiencies. Included in the equipment deficiency assessment was a review of:

- Inoperable/Degraded Equipment Listing (DEL) for Unit 1, dated July 10, 1998, and supporting documentation.
- LAP-240-7, "Defeating Annunciators," Revision 6.
- LAP-240-6, "Temporary Alterations," Revision 36.

- Temporary Alteration 1-0097-97, "0 DG [Diesel Generator] Day Tank Temporary Tygon Tubing Level Indication."
- Temporary Alteration 1-0098-97, "1A DG Day Tank Temporary Tygon Tubing Level Indication."
- Temporary Alteration 1-0099-97, "1B DG Day Tank Temporary Tygon Tubing Level Indication."
- Temporary Alteration 1-0232-97, "Temporary Power for Use in Unit 1 Drywell."
- Temporary Alteration 1-0041-98, "LOP [LaSalle Operating Procedure] RS-03 RSCS [Rod Sequence Control System] LPSP [Low Power Setpoint] Bypass."
- Temporary Alteration 1-0074-98, "LOP-MS-06 MSIV [Main Steam Isolation Valve] Surveillance Testing."
- Operability Evaluation OE98021, "DG [Diesel Generator] Air Start Solenoid Valves May Not Function at Terminal Voltages Below 105 VDC [Volts Direct Current]," dated May 1, 1998.

b. Observations and Findings

The team reviewed 120 items on the Unit 1 DEL. The 120 DEL items were chosen based on whether the particular item rendered both the component and system inoperable, was needed to allow a mode change as defined in the Unit 1 TS, or had a safety-related function.

The team found that all of the 120 items reviewed were adequately classified as degraded, available, or inoperable in the DEL, were scheduled for repair, and were sequenced to the appropriate TS mode change requirement.

The team reviewed 6 temporary alterations for procedural adherence to LAP-240-6, and correct installation and/or removal. No discrepancies were identified. The team also noted two defeated annunciators in the Unit 1 control room, IN62P600-B406 and 1PM13J-B504. Both were reviewed for procedural adherence to LAP-240-7 and the establishment of special logs to compensate for the defeated annunciator functions. No deficiencies were identified.

c. Conclusions

Equipment deficiencies were properly controlled and degraded equipment was adequately scheduled and tracked for repair.

O3 Operations Procedures and Documentation

O3.1 Review of NRC Restart Action Plan 0350 Items C.2.2.b, C.3.3.e, C.3.1.k, and C.3.3.f

a. Inspection Scope (71707)

The team reviewed NRC Restart Action Plan 0350 Items C.2.2.b, C.3.3.e, C.3.1.k, and C.3.3.f, regarding procedure adequacy and adherence.

b. Observations and Findings

b.1 Documented Licensee Actions

The team reviewed the following documented information regarding procedure adequacy and adherence for Action Step 2.0 of licensee Restart Action Plan 2.1, Action Steps 1.1, 1.2, 1.3, and 9.0 of licensee Restart Action Plan 1.3C, and Action Steps 2.0 and 6.0 of licensee Restart Action Plan 1.1A:

b.1.1 Restart Action Plan 2.1, Action Step 2.0 - Management Expectations

This action step focused on ensuring that expectations were understood and applied in daily work activities. It included documentation of attendance at coaching and observation training by supervisory personnel, and supervisory personnel observations and coaching of workers in the field. Over a thousand evaluations of various activities had been determined by the licensee to have been performed to demonstrate station commitment to field observations. Additionally, supervisors were given weekly trending information on human performance-related problem identification forms (PIFs).

b.1.2 Restart Action Plan 1.3C, Action Steps 1.1, 1.2, and 1.3 - Upgrade of Plant Procedures

The purpose of Action Step 1.1 was to ensure refueling frequency surveillance procedures, that would be performed during the current Unit 1 outage met acceptable standards. This was done by identifying any procedures that had technical deficiencies based on procedure change requests or temporary procedure changes. Additionally, experienced operators walked down these subset of procedure changes using a checklist that defined acceptable procedure standards.

The purpose of Action Step 1.2 was to ensure that operations procedures used during Unit 1 startup met acceptable technical and human factors standards.

The purpose of Action Step 1.3 was to ensure operation procedures reflected plant design changes that would be installed during L1F35.

b.1.3 Restart Action Plan 1.3C, Step 9.0 - Procedure Change Followup

This action step was to ensure that procedures identified in Steps 1.1, 1.2, and 1.3 were revised prior to startup. Completion of this step was administratively controlled by Nuclear Tracking System (NTS) Item 373-251-98-00080.00 and tracked on a frequent basis by station management.

b.1.4 Restart Action Plan 1.1A, Steps 2.0 and 6.0 - Confirmation of Procedural Adherence

The purpose of these action steps was to confirm that procedure use and performance of surveillances would support safe plant operation. Monitoring of this activity by the licensee was performed using the scorecard program that focused on performing the procedure correctly and completely.

b.2 Team Review of Documented Licensee Actions

The team independently reviewed portions of these action steps, and identified the following:

b.2.1 Communication of Management Expectations

The team verified through interviews of operations and maintenance personnel that the station had instituted the programs discussed above and that workers had become more sensitive to management expectations concerning procedure adherence. For example, operations shift management communicated recent human performance issues during shift briefings to stress procedure adherence.

b.2.2 Tracking of Procedure Changes Required Before Startup

The team verified that the original list of procedure revisions were tracked as an item that required completion prior to Unit 1 startup. Adequate tracking and status tools were available and were utilized by station personnel in order to screen the open procedure change request database. A review of these procedure changes were performed and made available to station personnel. In addition, when human performance issues resulted in procedure violations, the workers were made aware of the circumstances involved in the events.

b.2.3 Station Personnel Adherence to Procedures

The team assessed procedure adherence through extensive observations of activities in the control room and in the plant. For the vast majority of the activities observed, station personnel adhered to these procedures. However, some deficiencies were identified with the quality of review of surveillance and calculation documentation as discussed in Section M2.2 of this report.

b.2.4 Procedure Format Improvements

The team noted that many station procedure formats were changed in order to improve their usability from a human factors standpoint. Additionally, procedures were classified as continuous use, reference use, or information use, so that station personnel were aware of how management required them to be used in the field. Additionally, the sequencing of procedure steps was specified by requiring that all numbered steps be followed sequentially. Steps identified by a solid circle were to be performed in the order desired. Steps with a hollow circle were optional. These format improvements were determined by the team to be a positive factor towards ensuring that station personnel adhered to the procedures.

b.3 Review of Procedure Adequacy

The team assessed procedure adequacy through observation of activities in the control room and in the plant and through a detailed review of the following procedures:

<u>Procedure</u>	<u>Title</u>
LAP-100-40	Procedure Use and Adherence Expectations
LAP-200-3	Conduct of Operations
LGP-1-1	Normal Unit Startup

The team determined that the procedures provided sufficient detail and guidance to plant personnel. In addition, during control room and in-plant observations, no deficiencies involving procedure adherence were identified.

c. Conclusions

The implementation of actions delineated by Action Step 2.0 of licensee Restart Action Plans 2.1, Action Steps 1.1, 1.2, 1.3, and 9.0 of licensee Restart Action Plan 1.3C, and Action Steps 2.0 and 6.0 of licensee Restart Action Plan 1.1A was effective. Station management communicated expectations to station personnel, and station personnel were knowledgeable of management's expectations regarding procedure adherence. Station personnel adhered to procedural requirements. No deficiencies regarding procedure adequacy were identified. NRC Restart Action Plan 0350 Items C.2.2b, "Demonstrated Expectation of Adherence to Procedures"; C.3.3.e, "Adequacy of Plant Operating Procedures"; C.3.1.k, "Procedure Usage/Adherence"; and C.3.3.f, "Procedure Usage/Adherence," are closed.

O5 Operator Training and Qualification

O5.1 Modification Training

a. Inspection Scope (71707)

The team assessed operator knowledge of system modifications performed during the current outage by conducting interviews with licensed and non-licensed operators. Included in the assessment was a review of the modification, training lesson plan package, and data showing when operations personnel had been trained. The design change packages (DCPs) selected for review included:

<u>DCP Number</u>	<u>Title</u>
DCP 9200145	Concentrator Waste Tank Level Alarms
DCP 9500324	Eliminate 1E22-F016 HPCS [High Pressure Core Spray] Check Valve
DCP 9600290	ECCS [Emergency Core Cooling System] Suction Strainer Replacement
DCP 9700301	ECCS Suction Strainer Replacement
DCP 9700303	ECCS Suction Strainer Replacement
DCP 9700304	ECCS Suction Strainer Replacement

b. Observations and Findings

The team interviewed two licensed and two non-licensed operators. In each case, the operators had knowledge of the modification, understood the basis for the modification, and understood how it affected their area of responsibility. The lesson plans used for the modification training were adequate, and training records accurately documented personnel instruction on the modifications selected.

c. Conclusions

The licensee conducted operator training at an acceptable level to provide operators with the skill and knowledge necessary to operate systems modified during the Unit 1 outage.

O7 Quality Assurance in Operations

O7.1 Integrated Operations Performance Review (IOPR) Assessment

a. Inspection Scope (71707)

The team reviewed the licensee's plans for observation of specific plant evolutions to assess the readiness of the operations department to safely restart and operate the plant. The team also reviewed several IOPR observation reports and interviewed operations management personnel involved in the IOPR process.

b. Observations and Findings

The team attended an IOPR observer pre-evolution brief prior to the drywell pressurization test. The number and expertise of the selected licensee observers were adequate. During the drywell pressurization test, the IOPR was effective at identifying most operator performance deficiencies. For example, the IOPR identified that communications between non-operations department personnel were not in accordance with station standards, and that expected changes in suppression pool level during the test were not communicated to the operators during the pre-evolution brief.

The team determined that the observed pre-evolution briefs were adequate. However, the team was concerned that there was an inconsistent standard applied to pre-evolution briefs from shift to shift. The team identified that pre-evolution briefs for the drywell pressurization test were not consistent in the level of detail and the number of attendees from shift to shift. This was not discussed during the IOPR observer debrief nor in the licensee's performance summary report.

The team verified that some of the IOPR identified deficiencies from previously observed evolutions were corrected during the drywell pressurization test. For example, during the initial drywell pressure test pre-evolution brief, operations department management demonstrated positive leadership of the evolution, and the brief was attended by all the required station personnel. These had been identified by the IOPR as briefing weaknesses in the past.

c. Conclusions

The Integrated Operations Performance Review (IOPR) process was effective in observing, identifying, and correcting performance that did not meet station standards. The conclusion was based on a review of previous evolution observation summaries and observed performance during the Unit 1 drywell pressurization test.

O7.2 Review of NRC Restart Action Plan 0350 Item C.4.g, "Restart and Power Ascension Plan"

a. Inspection Scope (71707)

The team reviewed NRC Restart Action Plan 0350 Item C.4.g, through a review of the Unit 1 restart and power ascension plan.

b. Observations and Findings

The Unit 1 power ascension plan divided the startup into three separate test conditions as determined by reactor power level. The plan required senior management review and approval to move from one test condition to another. The plan explained management, staffing requirements, and supervisory roles were clearly established. Operator training was identified and appropriately scheduled. The plan discussed criteria for halting the sequence of power ascension testing and the required reviews for resolving problems and restarting the testing. In addition, applicable test procedures were identified in the plan.

The team reviewed the plan, the list of modifications performed during the outage, and the current degraded equipment log entries and verified that for selected items, tests were appropriately scheduled in the plan. The team verified that the licensee had identified the necessary procedures for the Unit 1 startup and had established a schedule for completion of required procedures prior to unit startup.

The effectiveness of the licensee's Restart Action Plan 1.1C, Step 4 - Fast Cruise System Checkout, was reviewed in Inspection Report 50-373/98011, Section O8.5.

c. Conclusions

The licensee developed an adequate power ascension plan for Unit 1 restart. Testing, staffing, procedures, management review and oversight, and a process for problem resolution were adequately identified within the plan. NRC Restart Action Plan 0350 Item C.4.g, "Adequacy of the Power Ascension Testing Program," is closed.

O7.3 Review of NRC Restart Action Plan 0350 Item B.4.5.a, "Licensee Restart Readiness Self-Assessment" in the Operations Area

a. Inspection Scope (71707)

The team reviewed NRC Restart Action Plan 0350 Item B.4.5.a, regarding the adequacy of the licensee's restart readiness self-assessment. The team reviewed the licensee's Operations Department Restart Readiness Self-Assessment, reviewed post meeting notes from the licensee's Restart Issues Review Committee (RIRC) meetings, attended portions

of the licensee's Corporate Nuclear Review Board (CNRB) meeting, and interviewed members of operations department management.

b. Observations and Findings

The team observed that the licensee's Operations Department Restart Readiness Self-Assessment addressed all aspects of operations department performance. The self-assessment stated that operations department performance was improving in all areas and was adequate for restart of Unit 1.

The team discussed the assessment with operations department management. Operations department management stated that the most significant problems remaining were in the areas of human performance and configuration control where performance was considered to be inconsistent, but adequate. Operations department management personnel stated standards were established, procedures were prepared, and corrective actions were being implemented to improve operator performance in these two areas.

The licensee's RIRC met on several occasions to review the restart readiness assessment before the team arrived on site. The RIRC consisted of senior station management. Operations department actions as a result of the meetings indicated that senior management sufficiently challenged the assessment conclusions. For example, existing signs in the plant were reviewed for accuracy and local panel alarms that would remain lit after restart were evaluated for their effect on plant operation.

The team observed that members of the CNRB, which consisted of vice president level management, sufficiently challenged senior operations department management on the conclusions reached in the restart readiness assessment. For example, the CNRB questioned how the lack of operating experience of some operators would be addressed and how day-to-day activities would be managed with one unit at power and the other getting prepared for startup.

The licensee planned to have the restart readiness self-assessment reviewed by a designated nuclear safety review board consisting of senior, non-ComEd, off-site reviewers after the conclusion of the team inspection.

c. Conclusions

The Operations Restart Readiness Assessment was comprehensive and accurately identified the performance areas needing improvement and corrective actions. The Restart Issues Review Committee and Corporate Nuclear Review Board reviews of the restart readiness assessment were effective in assessing station performance and recognizing areas that required additional station management attention. NRC Restart Action Plan 0350 Item B.4.5.a, "Evaluate Licensee's Restart Readiness Self-Assessment," is closed for the operations area.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Maintenance Observations

a. Inspection Scope (62707)

The team evaluated the performance of maintenance personnel through the direct observation of maintenance activities. In particular, the team verified that maintenance personnel performance and practices were commensurate with the work package instructions and maintenance standards.

b. Observations and Findings

The team observed the following maintenance activities during the inspection:

- WR 980053902-02 Add Isolation Valve 1DG104 to Unit 1 LPCS Motor Cooling Piping
- WR 980053902-01 Add Isolation Valve 1DG105 to Unit 1 LPCS Motor Cooling Piping
- WR 980056619-01 Add High Point Vent Valves 1DG099, 1DG100, 1DG101, and 1DG102 to Unit 1 LPCS Motor Cooling Piping
- WR 980066258-01 Rebuild Spare Heater Drain Pump Rotating Element

The team verified that the work was performed in accordance with the work package. In addition, the team observed that maintenance practices such as foreign material exclusion control, bolt tightening techniques, and radiation and personal safety were properly implemented. No deficiencies were identified.

WR 980053902 - LPCS Motor Cooling Water Isolation and Vent Valve Installation

The team observed the installation of isolation and vent valves in the LPCS motor cooling water system located in the radiologically protected area. During the work, a maintenance worker identified that water was dripping on a welding machine from an unknown source. The work was halted until the source of the water was identified and the area was verified to not be contaminated. The actions taken by the mechanical maintenance workers to stop the work and identify the leakage source of the leak were conservative.

Management Oversight of Work in Progress

The team accompanied several supervisors on tours which included both work in progress and idle work sites. The supervisors stated that their expectation for work in progress was that the job site was neat, well lighted, and free of unnecessary hazards. For idle work sites, the supervisors stated that the work area must have floor protection, it must be roped off and labeled, and the area must be neatly arranged. The team observed about ten-job sites in both the reactor and turbine buildings. No deficiencies were identified.

Maintenance Teams and Peer Checking

The team interviewed the senior maintenance department management personnel regarding longstanding maintenance issues and the efforts to correct them. The senior maintenance management personnel stated that a number of teams had been established to address specific issues. For example, the mechanical maintenance department established a leak team, an air-operated valve team, and a motor-operated valve team to address equipment issues related to these generic items. The instrument maintenance department had established a procedure team to review all of the department's procedures and issue Procedure Change Requests to resolve deficiencies. In addition, the departments increased the use of peer checking in an effort to identify maintenance problems during maintenance. The team interviewed two members of a welding crew who stated that the use of peer checking improved the quality of their work and reduced the time required to identify and correct problems.

c. Conclusions

Observed maintenance activities were performed in accordance with the applicable work package instructions and maintenance department standards. The team also concluded, based on direct observation, that maintenance workers demonstrated conservative decision-making when confronted with an unexpected situation.

M1.2 Quality of Completed Maintenance Activities

a. Inspection Scope (62707)

The team evaluated the quality of completed maintenance through a review of recent failed post-maintenance tests, repetitious equipment failures, maintenance rule equipment reliability histories, and rework data. In particular, the team reviewed the control room ventilation (VC) and reactor core isolation cooling (RCIC) systems to determine whether repetitious equipment failures had been adequately identified, prioritized and corrected. In addition, the team reviewed licensee rework and post-maintenance testing data to assess the quality of completed maintenance. The following licensee procedures were reviewed:

- LAP-400-17, "Maintenance Rule," Revision 2
- NSP [Nuclear Station Procedure]-WC [Work Control]-3007, "Rework Reduction," Revision 0
- Maintenance Rule (a)(1) Action Plan for RI-04
- Maintenance Rule (a)(1) Action Plan for VC-01

b. Observations and Findings

VC and RCIC Maintenance Rule Review

The VC system was designated 10 CFR 50.65 (Maintenance Rule) Category (a)(1) following several problems identified with compressor trips and damper failures. In 1997, the licensee identified that the VC system was not capable of performing its design basis function of maintaining a positive pressure in the control room. An extensive restart action plan was developed to modify and repair the VC system to meet its original design basis. The team reviewed the action plan and monitoring criteria for the VC system and determined that the licensee had taken adequate measures to ensure that the VC system was returned to its original design basis.

The RCIC system was designated Maintenance Rule Category (a)(1) following a maintenance preventable failure (over-torquing) of the Unit 1 RCIC rupture disc assembly. The action plan developed for the RCIC system included a procedure change to address the rupture disc assembly torquing issue and several design changes to improve system reliability. The team reviewed the implementation of the RCIC action plan and determined that the licensee had taken adequate measures to improve RCIC system reliability.

Rework Review

The team reviewed maintenance rework and post-maintenance testing data for the last 6 months. Additionally, the team interviewed members of the licensee's maintenance management staff, first line supervisors, and workers at various job sites regarding their expectations concerning rework. The team determined that the overall rework percentage had improved over the last 6 months and was below the station goal of 2 percent. The team determined that the improvement in rework rate was primarily due to a higher sensitivity to rework among the maintenance workers and the increased use of peer checking.

c. Conclusions

The quality of completed maintenance activities was adequate. Performance monitoring of the RCIC and VC systems as required by the Maintenance Rule was verified to be adequate, and the licensee had taken adequate measures to improve VC and RCIC system performance. Additionally, a higher sensitivity to rework among the maintenance workers and the increased use of peer checking resulted in a lower rework rate.

M2 Maintenance Support of Facilities and Equipment

M2.1 Plant Material Condition Review

a. Inspection Scope (62707)

The team conducted a walkdown of accessible portions of selected systems to assess the material condition of the plant.

b. Observations and Findings

The team conducted independent walkdowns of the Standby Liquid Control (SBLC), RCIC, VC, and other systems and determined that, overall, the material condition of the plant was good. The installation of a number of modifications and completion of other physical improvements were evident and improved the material condition of Unit 1. Also, the team noted that the licensee had taken effective corrective action to address the housekeeping deficiencies in the Unit 1 RHR pump rooms and RHR heat exchanger rooms which were discussed in NRC Inspection Report 50-373/98005; 50-374/98005.

The team identified a number of material condition and plant housekeeping deficiencies that had not been previously identified. These included packing leaks, loose fasteners on various electrical conduits and instrument line tubing, a slightly bent gauge needle, some debris in cable trays and other locations, and poor lighting due to burned out light bulbs. However, these deficiencies were relatively minor in nature. In addition, the team reviewed

deficiencies that had been identified for resolution after Unit 1 startup and verified that none of the deficiencies reviewed were safety significant or collectively represented a concern for system startup and operation. In addition, the team reviewed completed surveillance test results for the above systems (Section M2.2) and found only minor deficiencies.

In addition the team conducted a walkdown of the Unit 1 drywell. The team identified minor material condition and housekeeping deficiencies. The licensee planned to conduct a drywell close-out inspection and correct any significant deficiencies prior to Unit 1 startup.

c. Conclusions

The material condition of Unit 1 was good as indicated by system walkdowns, plant walkdowns, and document reviews. A number of material condition and housekeeping deficiencies were identified. However, these deficiencies were relatively minor in nature. In addition, the team reviewed deficiencies that had been identified for resolution and verified that none of the deficiencies reviewed were safety significant or collectively represented a concern for system startup and operation.

M2.2 Review of NRC Restart Action Plan 0350 Item C.4.e, "Surveillance Testing Program"

a. Inspection Scope (61726)

The team reviewed NRC Restart Action Plan 0350 Item C.4.e, regarding the adequacy of the surveillance testing program.

b. Observations and Findings

The team reviewed Action Step 1.9 and 2.0 of licensee Restart Action Plan 4.2, and Action Step 2.3.1 of licensee Restart Action Plan 3.1 in NRC Inspection Report 50-373/98005; 50-374/98005. During this inspection, the team reviewed Action Steps 1.1, 1.2, and 1.3 of licensee Restart Action Plan 1.3C. In addition, the team conducted additional reviews of the licensee's TS surveillance test program, including a verification that the surveillance test requirements for the SBLC, RCIC, and VC systems were met. The team witnessed portions of selected surveillance testing to verify that test personnel were cognizant of test procedure requirements and that the test requirements were properly implemented.

b.1 Documented Licensee Actions

The team reviewed the following documented licensee actions regarding surveillance testing for Action Steps 1.1, 1.2, and 1.3 of licensee Restart Action Plan 1.3C:

b.1.1 Restart Action Plan 1.3C - Operating Procedures

Restart Action Plan 1.3C was established to remove the operator challenges created by procedures that were of less than acceptable quality. In general, the action steps included in Action Plan 1.3C were designed to identify and improve selected operations procedures required for plant startup and operation that did not conform to acceptable standards.

b.1.2 Action Step 1.1 - Surveillance Review

The purpose of this action step was to ensure that refueling frequency surveillance test procedures that would be performed during the current Unit 1 refueling outage (L1F35) met acceptable standards to preclude the need to shutdown Unit 1 following restoration to power operation.

b.1.3 Action Step 1.2 - Startup Procedure Review

The purpose of this action step was to ensure that operations procedures used during Unit 1 startup met acceptable technical and human factors standards, and would not challenge the operators' ability to complete a safe, uneventful startup and power ascension.

b.1.4 Action Step 1.3 - L1F35 Design Change Package Procedure Review

The purpose of this action step was to ensure that operations procedures reflected plant design changes that were installed during L1F35. For this action step, any procedure affected by an L1F35 design change was considered deficient and included in this action step work scope.

b.2 Team Review of Documented Licensee Actions

The team independently reviewed portions of these action steps and identified the following:

b.2.1 Action Step 1.1 - Surveillance Test Procedure Review.

The licensee identified 33 operating surveillance test procedures conducted on a refueling outage frequency that required revision. The team reviewed the following surveillance test procedures and associated safety evaluations in this category:

- LOS-FP-R3, "Transformer Deluge Test For System Auxiliary Transformer 142(242)"
- LOS-RH-R1, "LPCI [Low Pressure Coolant Injection] Injection Line Check Valve Inservice Test"

The team considered the procedure changes to be technically appropriate. Format changes appeared to make the procedures easier to follow. No deficiencies were identified.

b.2.2 Action Step 1.2 - Startup Procedure Review

The licensee identified 85 startup procedures that required revision. The team determined that each of the procedures reviewed contained recent technical changes and were updated to the latest standard format. The administrative changes appeared to enhance the execution of the procedures.

The team reviewed the following procedures and associated safety evaluations:

- LGP-3-1, "Power Changes"
- LOP-RR-05, "Changing Reactor Recirc [Recirculation] Pump From Slow Speed To Fast Speed"
- LOS-PR-01, "Startup Operation Of The Main Steam Line Radiation Monitoring System"

No deficiencies were identified.

b.2.3 Action Step 1.3 - L1F35 Design Change Package Procedure Review

The licensee identified 418 procedures that required revision due to design changes made during L1F35. The team reviewed the following procedures:

- LOP-VC-01, "Control Room HVAC [Heating, Ventilation, and Air Conditioning] Operation," Revision 15, dated May 16, 1998.
- LOP-VE-01, "Auxiliary Electric Equipment Room HVAC Operation," Revision 14, dated May 16, 1998.

No deficiencies were identified.

b.3 Review of Completed System Surveillance Test and Maintenance Surveillance Test Procedures

The team reviewed the following completed system surveillance test and maintenance surveillance test procedures:

- LTS-400-17, "Control Room and Auxiliary Electric Equipment Room HVAC Isolation Damper Surveillance Smoke and Radiation Detection," Revision 7, completed on June 19, 1998.
- LaSalle Instrument Maintenance Procedure (LIP) VC-903, "Control Room HVAC System Ammonia Detector Operability Test," Revision 1, completed June 9, 1998.
- LaSalle Special Test (LST) 98-011, "Removal of Carbon Test Canisters From Filtration System Trains For Analysis," Revision 0, completed May 18, 1998.
- LaSalle Engineering Surveillance (LES) FP-10B, "VC And VE System B Air Duct Ionization Detector Functional Test," Revision 7, completed May 11, 1998.

- LaSalle Instrument Surveillance (LIS) PC-117B, "Unit 1 Main Steam Line Low Pressure Primary Containment Isolation Logic Channels C and D Relay Response Time," Revision 0, completed June 30, 1998.
- LIS-MS-102, "Attachment A - Unit 1 Main Steam Line High Flow MSIV Isolation Calibration Data Sheet," Revision 9, completed June 26, 1998.
- LIS-MS-101B, "Unit 1 Main Steam Line Low Pressure MSIV Isolation Calibration Not in Run Mode," Revision 0, completed May 27, 1998.
- LIS-PC-118A, "Unit 1 Main Steam Line High Flow Primary Containment Isolation Logic Channels A and B Relay Response Time Test," Revision 0, completed July 31, 1997.
- LIS-PC-118B, "Unit 1 Main Steam Line High Flow Primary Containment Isolation Logic Channels C and D Relay Response Time Test," Revision 1, completed June 30, 1998.
- LIS-PC-117A, "Unit 1 Main Steam Line Low Pressure Primary Containment Isolation Logic Channels A and B Relay Response Time," Revision 0, completed August 1, 1998.
- LIS-NB-118A, "Unit 1 Reactor Vessel Low Pressure and Injection Line Low Pressure LPCS/RHR A (LPCI) Injection Valve Open Permissive Calibration," Revision 5, completed May 6, 1998.
- LIS-NB-118B, "Unit 1 Reactor Vessel Low Pressure and Injection Line Low Pressure RHR B/RHR C (LPCI) Injection Valve Open Permissive Calibration," Revision 4, completed April 6, 1998.
- LIS-PC-101, "Unit 1 High Drywell Pressure Scram, Primary Containment Isolation, and Secondary Containment Isolation Calibration," Revision 5, completed June 24, 1998.
- LIS-MS-101B, "Unit 1 Main Steam Line Low Pressure MSIV Isolation Calibration Not in Run Mode," Revision 0, completed May 27, 1998.
- LaSalle Operating Surveillance (LOS) SC-M1, "SBLC Pump Operability Test and Explosive Valve Continuity Check," Revision 21, completed July 1, 1998, on SBLC Pump A and July 3, 1998, on SBLC Pump B.
- LOS-SC-Q1, "SBLC Pump Operability/Inservice Test and Explosive Valve Continuity Check," Revision 10, completed May 31, 1998.
- LOS-SC-R1, "SBLC System Injection Test," Revision 16, completed May 19, 1998.
- LOS-SC-R2, "SBLC Pump Suction/Injection Line Manual Isolation Valve Inservice Test," Revision 12, completed April 24, 1998.

- LOS-SC-R3, "SBLC Heat Traced Piping Flow Tests," Revision 12, completed May 3, 1998.
- LOS-SC-R4, "SBLC Solution Tank Heater Operability Test," Revision 5, completed May 15, 1998.
- LOS-SC-R5, "SBLC Pump Full Flow/Pressure Test," Revision 0, completed April 15, 1998.
- LOS-RI-Q5, "Reactor Core Isolation Cooling System Pump Operability and Inservice Test in Condition 1, 2, and 3," completed in September, 1996.
- LOS-DC-Q2, "Battery Readings for Safety-Related 250 VDC and Division 1, 2, 3 125 VDC Batteries," completed July 8, 1998.
- LOS-RI-MI, "RCIC System Monthly," completed in September 1996.

The team determined that the vast majority of the completed system surveillance tests and maintenance surveillance tests which reviewed were acceptable and were properly documented with results which met the acceptance criteria for the surveillance test. However, the following errors occurred due to a lack of attention to detail during surveillance test performance and ineffective reviews of completed surveillance tests:

Review of Surveillance Test LTS-400-17

Technical Specification 7.7.2.d.2 required that the VC/VE systems be maintained at a positive pressure of greater than or equal to 1/8-inch water gauge relative to the adjacent compartments during emergency train operation. On July 7, 1998, the team identified that calculations of the corrected differential pressures for areas adjacent to the control room (recorded in Attachment D of LTS-400-17) for the A train of the VC system were incorrect. The errors made were conservative and the team determined that the actual value of the corrected differential pressure for compartments adjacent to the control room met TS 4.7.2.d.2 requirements. Additionally, the team identified that a calibration due date had not been recorded for a pressure gauge (Serial No. 875147) in Attachment F of this surveillance. Further, data for six damper positions in Attachment 5 had been lined out and re-recorded without initials to accompany the line outs. These procedure discrepancies were not identified by the system engineer that reviewed the completed test on June 19, 1998. The licensee documented these surveillance test data inadequacies in PIF L1998-04975 and closed this issue after re-calculating the differential pressure data.

Review of Surveillance Test LST-98-011

On July 9, 1998, the team identified that carbon bed samples removed in accordance with LST-98-011 were not analyzed within the time required by the procedure. Step D.2 of LST-98-011 required that results of laboratory analysis of the carbon sample must be received within 31 days of sample removal. However, the OVC01FB filter bed sample results were received on May 18, 1998, for the sample removed on April 13, 1998; OVE01FA filter bed sample results were received on May 29, 1998, for the sample removed on April 24, 1998; and OVE01FB filter bed sample results were received on May 29, 1998, for the sample removed on April 24, 1998. The system engineering supervisor reviewed and accepted the

procedure on June 15, 1998, and failed to identify this issue. The system engineer stated that this test was normally performed with the system in operation and that the 31-day requirement served to ensure timely test completion. For the sample period in question, the VC/VE systems had been inoperable; therefore, there was no adverse affect due to the time delay. This failure constitutes a violation of minor significance and is not subject to formal enforcement action.

Review of Maintenance Surveillance Test LES-FP-10B

Step E.10.10.5 of LES-FP-10B completed May 11, 1998, required the licensee to perform a flow check to verify that the sensing line for return air duct (smoke) detector OXY-VE087A was not blocked. The expected response was a pressure fluctuation at this step. However, no flow fluctuation was obtained which potentially indicated a blocked sensing line. This unexpected flow check reading was not evaluated for cause or significance by engineering. The electrical maintenance supervisor gave verbal undocumented instructions to troubleshoot the unexpected response that involved disconnecting test equipment and pinching testing lines. On May 11, 1998, this test was reviewed and accepted by an electrical maintenance supervisor. The team questioned the acceptability of this surveillance test. Subsequently, the licensee declared this smoke detector inoperable and issued PIF L1998-05094 to document that this procedure step was completed with unsatisfactory results.

Review of Maintenance Surveillance Test LIS-PC-117B

The team identified errors in response time data and calculations initially recorded August 1, 1997, in Attachment C of LIS-PC-117B. The errors were not identified by the instrument maintenance supervisor that reviewed and accepted the procedure on August 1, 1997. On June 30, 1998, data was corrected for component response times, however, the total Instrument Channel C and D response times were not re-calculated and corrected. Additionally, the revised procedure was not re-routed through the closure process as required by a note on Page 36 of Procedure LAP-1300-1, "Administrative Procedure." On July 15, 1998, the licensee re-revised the data again. The corrected values met the TS acceptance criteria for these channels. The licensee documented on PIF L1998-05220 that a review of similar time response procedures for Unit 1 had not resulted in the identification of any similar occurrences and that a review of Unit 2 procedures was in progress.

b.4 Surveillance Testing Observations

The team observed the following surveillance test activities during the inspection:

- LES-FP-18, "Control Room Emergency Makeup Air Filter Unit Fire Protection Deluge System Channel Functional Test."
- LST-97-544, "Perform EHC [Electro-Hydraulic Control] Hydraulic Calibration."

Review of Surveillance Test LES-FP-18

Electrical maintenance department personnel that performed LES-FP-18 demonstrated adequate knowledge of the equipment tested, procedure requirements, and surveillance test precautions. Test equipment was used correctly and was within calibration. Temporary electrical jumpers and lifted electrical leads were controlled with tags and two party verifications. Control room personnel were kept informed of the testing status, out of service equipment, and expected alarms. No deficiencies were identified.

Review of Surveillance Test LST-97-544

The team noted that the calibration of the EHC system and cycling of EHC control valves were accomplished in accordance with the procedure. As-found out-of-tolerances were properly recorded and corrected. Communications between the instrument maintenance personnel in the auxiliary building and the control room were adequate.

c. Conclusions

The implementation of actions delineated by Action Steps 1.1, 1.2, and 1.3 of licensee Restart Action Plan 1.3C was effective. In particular, the team considered the changes made by the licensee to surveillance test and startup procedures technically appropriate and adequate to support plant restart. However, the team identified four errors that indicated lapses in attention-to-detail and ineffective review and maintenance of completed surveillance test data. Additionally, an unanticipated response identified during a smoke detector surveillance test was not entered into the corrective action process. Overall, the licensee's surveillance testing program was adequate. NRC Restart Action Plan 0350 Item C.4.e, "Adequacy of Surveillance Tests/Test Program," is closed.

M3 Maintenance Procedures and Documentation

M3.1 Work Package Quality Review

a. Inspection Scope (62707)

The team reviewed a number of pending work packages to verify that work package quality was adequate for the intended maintenance activity.

b. Observations and Findings

The team reviewed the following work packages:

- WR 980053902-02 Add Isolation Valve 1DG104 to Unit 1 LPCS Motor Cooling Piping
- WR 980053902-01 Add Isolation Valve 1DG105 to Unit 1 LPCS Motor Cooling Piping
- WR 980056619-01 Add High Point Vent Valves 1DG099, 1DG100, 1DG101, and 1DG102 to Unit 1 LPCS Motor Cooling Piping
- WR 980066258-01 Rebuild Spare Heater Drain Pump Rotating Element
- WR 960031779-02 1D Heater Drain Pump Seal Replacement

- WR 980067605-01 Inspect Gland Water Head Tank Level Control Valve and Repair as Required
- WR 980067509-01 Disassemble and Repair 1D Heater Drain Pump Minimum Flow Valve

Documents specifically reviewed included the following where applicable:

- LAP-1300-1, "Action/Work Request Processing," Revision 70.
- LAP-1300-1T2, "Work Package Preparation," Revision 1.
- NSWP [Nuclear Station Work Procedure]-WM [Work Management]-05, "Implementation of the Fix-It-Now (FIN) Process," Revision 0.
- NSWP-WM-08, "Action Request Screening Process," Revision 1.
- NSWP-WM-09, "Maintenance Work Schedule Process Week E-5 to E+1," Revision 0.

The team determined that the work packages were properly assembled in accordance with LAP-1300-1T2 and contained all necessary instructions and supporting information. Overall, the work packages were adequate to support the maintenance activities. However, the following weaknesses were identified:

Use of Work Package Walkdown/Feedback Forms

The team identified that work package walkdown/feedback forms were not consistently used. These forms were provided to allow the workers in the field to walkdown the work packages prior to the performance of non-emergent work. The inspectors reviewed five non-emergent work packages. Four of the five packages did not have a completed feedback form.

Worker Sensitivity to Increased Responsibility For Priority Work

During the inspection, the licensee classified a large number of action requests as high priority Class A or Class B1. The inspectors reviewed these classifications and concluded that the work was properly classified in accordance with NSWP-WM-08. However, the inspectors questioned whether workers were aware that priority work bypassed some of the work control processes such as pre-job walkdowns, and as a result, increased the overall responsibility of the individual worker. In response to this question, the work control department conducted a random survey of a number of maintenance workers. The results of the survey indicated that one out of three workers did not understand that they had additional responsibility to ensure that work was properly performed due to the abbreviated work control processes for planning priority work. At the end of the inspection, the licensee planned to train maintenance workers on this issue.

c. Conclusions

Work package quality was adequate to support the planned maintenance activities. However, two deficiencies were identified regarding the use of work package quality feedback forms and maintenance worker knowledge of the increased responsibility during priority work.

M4 Maintenance Staff Knowledge and Performance

M4.1 Maintenance Planning, Scheduling, and Implementation

a. Inspection Scope (62707)

The team reviewed the implementation of the licensee's maintenance planning and scheduling processes to verify that the processes were adequate to track, prioritize, and resolve plant equipment deficiencies. The following procedures were reviewed:

- NSWP-WM-05, "Implementation of the Fix-It-Now Process"
- NSWP-WM-06, "Minor Maintenance Process"
- NSWP-WM-09, "Maintenance Work Schedule Process Week E-5 to E+1"

b. Observations and Findings

Use of the Fix-It-Now (FIN) Team

The team reviewed recent FIN team performance. The FIN team was able to exceed the station goal of 200 tasks per week during 7 weeks of the outage, and the FIN team screened between 50 and 100 action requests (ARs) each week as minor maintenance items which did not need to be entered into the work planning process. The work control superintendent stated that the non-outage backlog growth was halted largely as a result of the FIN team. The team reviewed the FIN team performance indicators and concluded that FIN team had successfully implemented its charter.

Schedule Adherence

The team reviewed a sample of recent work start/finish timeliness data, compared the results against licensee goals, and discussed these results with the work control superintendent. The team identified that overall work schedule adherence was slightly below the licensee's goal of 90 percent. The work control superintendent stated that the schedule adherence rate was based on the combination of both outage (L1F35) and non-outage work. However, the station was concentrating on L1F35 work to support Unit 1 restart; therefore, some non-outage work was delayed to accommodate priority outage work requests. Additionally, some L1F35 work had taken longer than scheduled to accomplish due to unexpected expansion of the job scope. Both of these delays impacted the non-outage scheduled more than the L1F35 schedule due to the priority given to L1F35 work. The resulting overall work schedule adherence rate was approximately 80 percent.

The team reviewed the L1F35 work backlog and completion rate data for scheduled L1F35 work and determined that during the inspection, the station met the goal of 90 percent L1F35 schedule adherence, and several maintenance departments had achieved 100 percent L1F35 schedule adherence. The team also noted the successful use of the FIN team to complete minor maintenance work requests soon after the need for maintenance was identified.

c. Conclusions

Maintenance was adequately scheduled and prioritized.

M7 Quality Assurance in Maintenance Activities

M7.1 Review of NRC Restart Action Plan 0350 Item B.4.5.a, "Licensee Restart Readiness Self-Assessment" in the Maintenance Area

a. Inspection Scope (62707)

The team reviewed NRC Restart Action Plan 0350 Item B.4.5.a, regarding the adequacy of the licensee's restart readiness self-assessment. In particular, the team reviewed this action plan as it pertained to the maintenance area.

b. Observations and Findings

Between April and June 1998, the licensee's maintenance departments conducted restart readiness self-assessments to identify specific issues which needed to be corrected prior to Unit 1 restart. The team reviewed the maintenance department self-assessment reports, interviewed several maintenance superintendents and managers, and observed work in the plant.

The maintenance department self-assessments used consistent criteria for determining which deficiencies required action prior to Unit 1 restart. The team reviewed the deficiencies and found that the maintenance department restart self-assessments were conservative with regard to the issues which were designated as requiring resolution prior to Unit 1 restart.

The team independently reviewed the restart readiness self-assessment of maintenance performed by the RIRC and the CNRB. The objectives of these reviews were clearly stated, and the summary of actions presented addressed the objectives. In addition, identified problems and the implementation of corrective actions were candidly discussed.

The following common problems were identified as a result of the self-assessments:

- Department self-identification of problems was below plant expectations.

To address this issue, the maintenance department superintendents discussed the use of PIFs at the daily maintenance meetings. Additionally, the maintenance departments have increased the use of peer checking to help identify maintenance problems. These initiatives were too new for the team to fully assess their effectiveness; however, several workers at job sites in the plant stated the peer checking had improved the quality of their work.

- No formal program to use other sources of information such as Operating Experience Reports existed.

To address this issue, the restart readiness assessment corrective action plans included training on the use of Operating Experience Reports. Maintenance management

personnel stated that an Operating Experience review program was being developed to ensure a formal review of industry experience reports.

- Department self-identification of rework did not meet maintenance management expectations.

To address this issue, the maintenance departments have begun to stress rework reduction at the daily maintenance meetings. The team determined that the overall rework percentage had dropped over the last 6 months and was below the station goal of 2 percent.

c. Conclusions

The Maintenance Restart Readiness Assessments were comprehensive and accurately identified the performance areas needing improvement and corrective actions. The issues which were identified as a result of the self-assessments were appropriately categorized, and the corrective actions planned or implemented appeared adequate. The Restart Issues Review Committee and Corporate Nuclear Review Board reviews of the restart readiness assessment were effective in assessing station performance and recognizing areas that required additional station management attention. NRC Restart Action Plan 0350 Item B.4.5.a, "Evaluate Licensee's Restart Readiness Self-Assessment," is closed for the maintenance area.

III. Engineering

E1 Conduct of Engineering

E1.1 Modification Review

a. Inspection Scope (37551)

The team reviewed documentation associated with recently installed modifications and conducted system walkdowns to verify proper installation.

b. Observations and Findings

The team reviewed the DCPs for the following recently installed modifications:

- DCP 9200044 Replace SBLC Pumps Wobble Stick With An On-Off Type Switch
- DCP 9600405 Modification of U-Bolt for Hangar FRI1216H02G
- DCP 9700180 Replacement of RCIC Drain Line and Sight Glass
- DCP 9700604 Relocate "A" VC Outside Air Intake To Return Fan Suction
- DCP 9700351 VC/VE [Auxiliary Electrical Equipment Room Ventilation] Outside Air Dampers Isolation On Smoke Detection
- DCP 9600448 Carbon Steel Weld Boss Replacement on 1E12-F050B

Documents specifically reviewed included the following, where applicable:

- 10 CFR 50.59 safety evaluation
- Operating and emergency operating procedure changes
- Operator training
- Revisions to as-built drawings
- Revisions to the Updated Final Safety Analysis Report (UFSAR)
- Design change calculations, analyses, and design output documents

The following positive observations were identified:

- VC/VE System Modifications

The licensee had identified that the VC/VE systems were inadequate with respect to design requirements such as: the supply and return fans operated in the stall regions, the VC/VE system could not maintain the TS required positive pressure relative to adjacent spaces, excessive air in leakage in damaged ducts, lack of adequate duct stiffeners, and makeup air to the VC/VE systems was less than design. To correct these conditions the licensee completed several modifications. The team considered these modification packages to be thorough, complete and appropriate technical solutions to return VC and VE operating system performance to design values.

- RHR System Modifications

The licensee completed DCP EO1-1-9600448 to correct original construction nonconformance pertaining to a dissimilar metal weld in the RHR system. On PIF 96-3001 dated October 8, 1996, a design engineer evaluating an engineering work request identified multiple locations in small bore RHR bypass lines where dissimilar metal welds existed (contrary to the original design) which created the potential for fatigue stresses to exceed the ASME Code allowable. The team considered the resolution of these original construction deficiencies to demonstrate an effective engineering effort.

Overall, the modifications reviewed by the team were adequately designed, installed, and tested. No deficiencies were identified.

c. Conclusions

Overall, the modifications reviewed were properly designed, installed, and tested. In particular, the team considered the modifications reviewed for the VC, VE, and RHR systems to provide good technical resolution of the original construction deficiencies in these systems.

E1.2 Operability Evaluation Review

a. Inspection Scope (37551)

The team reviewed completed operability evaluations.

b. Observations and Findings

The team reviewed the following operability evaluations:

<u>OE Number</u>	<u>Title</u>
OE98003	During LOS-RH-Q1 RHR Keep Fill Check Valves 1E12-F451 And F448 Would Not Meet Acceptance Criterion
OE97006	Lack Of Applicable TS Surveillance For Station Blackout Battery Surveillance
OE96088	Ten-Minute Delay In RHR Heat Exchanger Bypass Valve Circuit and Valve Stroke Time Results in Initiation of Suppression Pool Cooling Later Than Previous Analysis Assumptions

For systems affected by these operability determinations the team identified a technical basis for system or component operability supported by engineering evaluations and/or corrective measures. No deficiencies were identified.

c. Conclusions

The operability evaluations reviewed were of good quality and provided adequate technical justification for the conclusions.

E2 Engineering Support of Facilities and Equipment

E2.1 Review of NRC Restart Action Plan 0350 Item C.4.a, "Operability of TS Systems"

a. Inspection Scope (37551)

The team reviewed NRC Restart Action Plan 0350 Item C.4.a, regarding the operability of TS systems.

b. Observations and Findings

b.1 Documented Licensee Actions

The NRC reviewed Action Steps 2.0 and 5.0 of licensee Restart Action Plan 4.2 in NRC Inspection Reports 50-373/98005; 50-374/98005 and 50-373/98012; 50-374/98012, respectively. The team reviewed Action Step 9.0 of licensee Restart Action Plan 4.2 in Section E2.5 of this report. The team reviewed the following documented information regarding the operability of TS systems for Action Steps 3.1, 3.2, and 3.3 of licensee Restart Action Plan 1.1C.

b.1.1 Action Step 3.1 - Complete LLP [LaSalle Special Procedure] 98-003 to Support Mode Switch to Startup

This action step required the performance of LLP-98-003, "Unit 1, Special Procedure - Restart Certification Special Procedure," that established a program to identify, record, and

close out prerequisites for Unit 1 restart certification. This special procedure was issued due to the special tasks performed to review and close out issues that are unique to the Unit 1 startup.

b.1.2 Action Step 3.2 - Complete Startup Onsite Review (OSR)

The startup OSR was scheduled for completion prior to the mode change. Nuclear Tracking System Item 373-251-98-00078.00 was issued to track completion of this action step prior to restart.

b.1.3 Action Step 3.3 - Complete Startup Plant Operations Review Committee (PORC)

The startup PORC was scheduled to complete its pre-startup review prior to the mode change. Nuclear Tracking System Item 373-251-98-00079.00 was issued to track completion of this step prior to restart.

b.2 Team Review of Documented Licensee Actions

The team independently reviewed portions of these action steps, reviewed the operability of the SBLC, VC, and RCIC systems, and identified the following:

b.2.1 Action Step 3.1 - LLP-98-003 Review

At the end of the inspection, LLP-98-003 had not been initiated for completion. The team reviewed an uncompleted copy of LLP-98-003, "Restart Certification Special Procedure," Revision 0, dated April 22, 1998, and verified that the procedure adequately encompassed the necessary startup prerequisites.

b.2.2 Action Step 3.2 - Complete Startup OSR Review

At the end of the inspection, the startup OSR had not been completed. The team verified that the NTS item identified for this action step had been entered into the NTS system for completion prior to Unit 1 restart.

b.2.3 Action Step 3.3 - Complete Startup PORC Review

At the end of the inspection, the startup PORC review had not been completed. The team verified that the NTS item identified for this action step had been entered into the NTS system for completion prior to Unit 1 restart.

b.2.4 Review of TS Operability of the SBLC, VC, and RCIC Systems

The team reviewed surveillances and TS requirements associated with the SBLC, VC, and RCIC systems and verified that the operability requirements of these systems had been identified and TS surveillances had been completed as required. The following issues were identified:

Operability and Conformance of VC/VE Systems to Design Basis

The team independently reviewed vendor technical manuals, supporting design documentation and performed a walkdown of the VC/VE system, including the fire protection system interface, to verify conformance with the UFSAR design basis.

The overall material condition of these systems was considered good and the latest surveillance tests demonstrated that the overall system operational performance exceeded UFSAR minimum values for maintaining positive pressure in the control room and auxiliary electric equipment room (AEER). Additionally, the system filter trains met design requirements for filter efficiencies, material types, and design resident times for charcoal adsorber beds. However, the following deficiency was identified:

- Fire Protection System Ionization Detector Sensitivity and Time Response

In the event of smoke detection, all supply air delivered to the conditioned spaces serviced by the VC/VE systems was automatically directed through a normally bypassed charcoal adsorber for smoke and odor removal. To effect this automatic system realignment, smoke detectors (ionization detectors) were installed in the VC/VE systems. For the VC/VE ionization monitors, UFSAR Section 7.3.4.3.13.f stated that the ionization level which would cause protective action was approximately 100,000 particles per cubic centimeter. UFSAR Section 7.3.4.3.13.h stated that the system response capability was 10-20 seconds with a setpoint accuracy of 20 percent of the sensitivity level. The licensee subsequently initiated PIF L1998-02636 to document that no procedural verification of the response time or sensitivity of these detectors could be identified. The team identified that the ionization detectors were not being periodically checked for "optimum performance" by blowing smoke into the detector in accordance with Section 2.2 of the vendor manual (PYR-A-LARM Air Duct Detector Unit Model CDA-2 Operation, Installation and Maintenance Manual). The licensee initiated NTS Item 373-225-98-00256.00 to revise instrument surveillance test procedures to include the action to periodically test the ionization detectors with an approved test gas. This is an inspection followup item (IFI 50-373/98015-01(DRP)) pending NRC review of the ionization detector testing results.

c. Conclusions

The implementation of actions delineated by Action Steps 3.1, 3.2, and 3.3 of licensee Restart Action Plan 1.1C was effective. The latest surveillance test results for the control room ventilation system and auxiliary electric equipment room ventilation system demonstrated that the operational performance exceeded TS acceptance criteria. NRC Restart Action Plan 0350 Item C.4.a, "Operability of Technical Specification Systems," is closed.

E2.2 Review of NRC Restart Action Plan 0350 Item C.4.b, "Operability of Required Secondary and Support Systems"

a. Inspection Scope (37551)

The team reviewed NRC Restart Action Plan 0350 Item C.4.b, regarding the operability of required secondary and support systems.

b. Observations and Findings

b.1 Documented Licensee Actions

The NRC reviewed Action Step 2.0 of licensee Restart Action Plan 4.2 in NRC Inspection Report 50-373/98005; 50-374/98005. The team reviewed Action Step 9.0 of licensee Restart Action Plan 4.2 in Section E2.5 of this report. The team reviewed the following documented information regarding the operability of secondary and support systems for Action Step 11.0 of licensee Restart Action Plan 1.2A:

Action Plan 1.2A - Operator Workarounds

Action Plan 1.2A was developed because plant operators were unnecessarily challenged during normal, abnormal, and emergency plant conditions due to a high number of operator workarounds in the plant. Therefore, the key objective for Action Plan 1.2A was to "reduce challenges to plant operators by reducing the number of operator workarounds that require compensatory action by operators in the normal course of their daily activities."

Action Step 11.0 - Schedule or Complete an Action Plan for Each Operator Workaround

An action plan for each operator workaround was established in February 1997. To address the need to effectively track operator workarounds, a formal database was established by the operator workaround coordinator to monitor work requests and design changes associated with the individual operator workarounds. This database included the associated action plans for each operator workaround, along with individual owners and projected completion dates.

b.2 Team Review of Documented Licensee Actions

The licensee had reduced the number of operator workarounds from over 100 at the beginning of the outage to 6 for Unit 1. The team reviewed the open workarounds and concluded that the remaining items were being tracked and could be appropriately addressed following Unit 1 restart.

Based on discussions with operators and independent walkdowns, no additional workarounds were identified. Operators indicated that the most significant open workaround; the potential entry of water into the instrument air system due to unreliable drain traps, was added to the list because of some indications of moisture observed during mid-1997. The operators indicated that these incidents were isolated and had not been observed recently. The licensee initiated DCP 9700312 to install a larger drain trap system to resolve this issue.

c. Conclusions

The implementation of actions delineated by Action Step 11.0 of licensee Restart Action Plan 1.2A was effective. The operator workaround backlog had been reduced significantly and did not contain any items which represented restart issues. NRC Restart Action Plan 0350 Item C.4.b, "Operability of Required Secondary and Support Systems," is closed.

E2.3 Review of NRC Restart Action Plan 0350 Item C.4.f, "Resolution of Significant Hardware Issues"

a. Inspection Scope (37551)

The team reviewed NRC Restart Action Plan 0350 Item C.4.f, regarding whether significant hardware issues have been resolved prior to restart.

b. Observations and Findings

b.1 Documented Licensee Actions

The NRC reviewed Action Steps 1.9 and 2.0 of licensee Restart Action Plan 4.2 in NRC Inspection Report 50-373/98005; 50-374/98005. The team reviewed Action Step 9.0 of licensee Restart Action Plan 4.2 and Action Steps 2.3 and 2.4.2 of licensee Restart Action Plan 3.1 in Section E2.5 of this report. The NRC reviewed Action Step 2.4.1 of licensee Restart Action Plan 3.1 regarding the documentation of SFPR discovery results in NRC Inspection 50-373/97012; 50-374/97012. The team reviewed the following documented information regarding the resolution of significant hardware issues for Action Steps 2.1, 2.2, and 2.4.3 of licensee Restart Action Plan 3.1:

b.1.1 Action Step 2.1 - Establish Senior Management Review Committee (SMRC)

Action Step 2.1 established an SMRC to review significant plant work and make recommendations for inclusion in the outage scope.

b.1.2 Action Step 2.2 - Review SFPRs and Determine if Additional Reviews Are Required

Action Step 2.2 provided an opportunity for operations, engineering, and outage planning to evaluate the system design reviews and SFPRs that had been completed and make a determination whether additional reviews were required to ensure that work that needed to be accomplished during refueling outage L1F35 was identified and scheduled in the outage plan.

b.1.3 Action Step 2.4.3 - Present a Consolidated Unit 1 System Readiness Status to Management Prior to Restart

As part of the final determination of readiness to restart, a consolidated status of the system readiness reviews will be provided to the RIRC prior to Unit 1 restart.

b.2 Team Review of Documented Licensee Actions

The team independently reviewed the action steps discussed above and identified the following:

b.2.1 Action Step 2.1 - Establish Senior Management Review Committee

The licensee established the SMRC in January of 1997 to review significant work and make recommendations for work scope in the L1F35 outage. In addition, the licensee established an RIRC in August of 1997 with the responsibility to determine if issues

satisfied the criterion for inclusion in the L1F35 outage scope. The outage Scope Control Committee (SCC) met daily to evaluate the scope change requests and make initial determinations for whether an issue should be added to the outage scope. The RIRC then reviewed the results of the SCC.

b.2.2 Action Step 2.2 - Review System Design and Functional Reviews

The licensee performed SFPRs and design reviews to establish a level of confidence that the systems important to safe and reliable operation would perform consistent with their design basis. The team determined that the scope and focus of the licensee's reviews were adequate to meet the SFPR objectives.

The issues identified by the SFPR were documented on Issue Resolution Sheets (IRSs). These issues were then categorized by the licensee as restart-related or post-restart. The team reviewed lists of IRSs for the SBLC, RCIC, VC, and VE systems and evaluated the licensee's application of the restart criteria. The team identified that IRS VE-006, which was designated for post-restart correction, could impact compliance with TS 4.7.5.2 for demonstration of the operability of fire protection systems connecting to the VC/VE filter trains. Thus, this issue required a restart designation in accordance with the licensee's restart criteria. Further discussion of this issue appears below.

A fire protection deluge system protects the charcoal filter beds in the VC/VE system filter trains from a potential fire in the charcoal media. For IRS Item VE-006, the licensee stated that the operability requirements of the deluge and sprinkler systems in TS 4.7.5.2 could not be confirmed. In particular, the team identified that the licensee was not performing annual cycling of the testable deluge valves for fire protection trains serving the VC/VE system charcoal filter media as required by TS Surveillance Requirement 4.7.5.2.b. Further, the licensee did not have a definition for testable valves for the deluge systems and initiated PIF L1998-5108 to document that the normally closed fire protection valves were not routinely cycled and lubricated. Specifically, the team identified that normally shut manual (testable) Valves 1FP-236, 1FP-161, 1FP-160B, 1FP-234, and 1FP-160A in fire protection deluge flow paths for the VE and VC systems had not been cycled annually through at least one complete cycle of travel. The failure to implement annual cycling of testable valves in the Unit 1 and 2 deluge and sprinkler system flow paths for the control room and AEER ventilation systems was a violation of TS 4.7.5.2.b (50-373/98015-02(DRP)). The team noted that this condition appeared to exist for other safety-related trains protected by fire protection systems such as the standby gas treatment system. The licensee stated that the manual valves in these flow paths would be cycled prior to Unit 1 restart.

The licensee stated that the remotely operated solenoid actuated deluge valves for VE and VC system trains were not testable valves due to the design of the valves and associated piping trains. Specifically, these valves could not be cycled without the potential introduction of water and damage to the charcoal filter media. The team was concerned that the lack of routine cycling of these valves could potentially impact the long-term ability to pass water through these valves. The licensee planned to evaluate the long-term operability of these valves. This is an inspection followup item pending a review of the licensee's evaluation (IFI 50-373/98015-03 (DRP)).

b.2.3 Overall Engineering Request (ER) Backlog

The team evaluated the ER backlog. The number of ERs tracked for backlog trending purposes was 1804 in December of 1997 and declined to 1675 ERs in April of 1998. A re-classification of ERs in accordance with guidance in NSP-CC-3000, "Engineering Request Screening and Prioritization," was implemented in May of 1998. As a result of this re-classification, the number of open high priority ERs was reduced to 280. In June of 1998, the total number of high priority ERs was 283 with 31 new ERs opened and 28 closed.

c. Conclusions

The implementation of actions delineated by Action Steps 2.1, 2.2, and 2.4.3 of licensee Restart Action Plan 3.1 was effective. The implementation of the system functional performance review program was particularly good. One violation of TS was identified pertaining to the annual cycling of testable valves in fire protection train flow paths. The licensee was effectively controlling the engineering request backlog. NRC Restart Action Plan 0350 Item C.4.f, "Significant Hardware Issues Resolved," is closed.

E2.4 Review of NRC Restart Action Plan 0350 Item C.4.I, "Licensee Management of Technical Issues Precluding Restart"

This item is closed through the closure of NRC Restart Action Plan 0350 Items C.4.a, C.4.b, and C.4.f which are discussed and closed in Sections E2.1, E2.2, and E2.3 of this report.

E2.5 Review of NRC Restart Action Plan 0350 Item C.2.3.c, "Timely Resolution of Engineering Issues"

a. Inspection Scope (37551)

The team reviewed NRC Restart Action Plan 0350 Item C.2.3.c, regarding whether adequate engineering support was provided as demonstrated by the timely resolution of issues.

b. Observations and Findings

b.1 Documented Licensee Actions

The team reviewed Action Steps 1.0, 3.0, 4.0, 5.0, and 6.0 of licensee Restart Action Plan 4.1 in Inspection Report 50-373/98005; 50-374/98005. Action Steps 2.0 and 7.0 were reviewed in Inspection Report 50-373/98012; 50-374/98012. The team reviewed Action Steps 1.0, 2.0, 3.0, 4.0, 6.0, 7.0, and 8.0 of licensee Restart Action Plan 4.2 in Inspection Report 50-373/98005; 50-374/98005. Action Step 5.0 was reviewed in Inspection Report 50-373/98012; 50-374/98012.

During this inspection, the team reviewed Action Step 9.0 of licensee Restart Action Plan 4.2 regarding the system readiness review process. The licensee documented the following information regarding the completion of Action Step 9.0.

b.1.1 Action Step 9.0 - System Readiness Reviews

The purpose of this program was to ensure that systems important to safe startup and reliable operation were in satisfactory operating condition prior to startup. The system readiness review provided a formal process to review open items against all plant systems for startup readiness.

For each system, the system readiness review and turnover to operations program consisted of two phases. The first phase included the system engineer's review of system backlogs and a walkdown of the system to assess its material condition and assure that deficiencies had been identified and evaluated. The second phase was the turnover of each system to operations so that operations could verify that the system was operable.

Upon completion of each system performance assessment, engineering management performed a final review of system status. Issues identified during the system readiness reviews were documented on a system closure outstanding items list, and the issues were appropriately dispositioned prior to turning the system over to operations.

b.2 Team Review of Documented Licensee Actions

The team independently reviewed the action steps discussed above and identified the following:

b.2.1 System Readiness Reviews

The team reviewed "LaSalle County Station L1F35 System Readiness Review and Turnover to Operations Program," which defined the actions to be taken to prepare for the System Readiness Review Board (SRRB). In addition, the team reviewed system readiness review packages for the SBLC, RCIC, VC, core standby cooling system (CSCS) and the DG systems and attended the SRRBs for the CSCS and DG systems.

System Readiness Review Board Observations

The team attended the SRRB meetings for the CSCS and DG systems on May 27, 1998, and May 29, 1998, respectively. The following observations were noted:

- The SRRB was comprised of individual who met the program requirements. In addition, a number of other licensee and management personnel participated, although not required.
- The SRRB members challenged the information presented on a number of occasions to ensure that decisions regarding the deferral or inclusion of items in the outage schedule were appropriate.
- The CSCS and DG system engineers were knowledgeable of their systems.

System Readiness Review Package Reviews

The vast majority of information reviewed for the SBLC, RCIC, VC, CSCS and DG system readiness review packages was adequate. However, open DEL Entry 140-94-1, Item 250, "Seal Cooler Flow Higher Than Designed - Operational Evaluation," was omitted from the CSCS system outstanding items list, although required.

The team verified that the L1F35 outstanding items list was revised to include the item which was inadvertently omitted.

c. Conclusions

The implementation of the actions delineated by Action Step 9.0 of licensee Restart Action Plan 4.2 was effective. Also, the implementation of the SRRB was effective. In particular, the SRRB members challenged the information presented on a number of occasions to ensure that decisions regarding the deferral and inclusion of items in Unit 1 forced outage L1F35 were appropriate. NRC Restart Action Plan 0350 Item C.2.3.c, "Adequate Engineering Support as Demonstrated by Timely Resolution of Issues," is closed.

E2.6 Engineering Response to Emergent Plant Technical Problems

a. Inspection Scope (37551)

The team reviewed the engineering organization response to emergent plant technical problems.

b. Observations and Findings

On July 3, 1998, the licensee identified that the power supply for the "D" VC radiation monitor failed to return to service when bus voltage was restored during response time testing and documented this condition in PIF L1998-04875. The engineering staff evaluated the affect on the VC/VE radiation detectors and reported that the VC/VE radiation detectors that did not return to service following a power fluctuation would actuate the protective function and alarm or realign the VC/VE systems (e.g., fail conservatively). However, the licensee identified that this same problem also existed with the gross gamma detectors in the drywell used for post accident monitoring. The licensee staff planned to modify the power supplies for the gross gamma monitors prior to restart under DCP 9800169 and DCP 980170. NTS Item 374-201-98-CAQD00365 was issued which indicated that the affected equipment was considered inoperable pending correction of the affected equipment power supplies.

c. Conclusions

The engineering department response to an emergent problem regarding the susceptibility of radiation monitor power supplies to voltage surges was effective.

E7 Quality Assurance in Engineering Activities

E7.1 Review of NRC Restart Action Plan 0350 Item B.4.5.a, "Licensee Restart Readiness Self-Assessment" in the Engineering Area

a. Inspection Scope (37551)

The team reviewed NRC Restart Action Plan 0350 Item B.4.5.a, regarding the adequacy of the licensee's restart readiness self-assessment. In particular, the team reviewed this action plan as it pertained to the engineering area.

b. Observations and Findings

The team independently reviewed the restart readiness self-assessment of engineering-related areas performed by the RIRC and the CNRB. The team attended several meetings and reviewed meeting minutes and reviewed the engineering department startup self-assessment.

To complete the engineering department startup self-assessment effort, the licensee established an assessment scope which consisted of 17 focus area topics. The licensee established quantitative acceptance criteria to assess each of the focus topics. In addition, findings from the review were categorized as either restart-required or not restart-required with specific actions specified to be accomplished to close out the specific finding. The team reviewed the specific focus topics, acceptance criteria, and findings.

The team independently reviewed the restart readiness self-assessment of engineering performed by the RIRC and the CNRB. The objectives of these reviews were clearly stated, and the summary of actions presented addressed the objectives. In addition, identified problems and the implementation of corrective actions were candidly discussed.

c. Conclusions

The Engineering Restart Readiness Assessment was comprehensive and accurately identified the performance areas needing improvement and corrective actions. The issues which were identified as a result of the self-assessments were appropriately categorized, and the corrective actions planned or implemented appeared adequate. The Restart Issues Review Committee and Corporate Nuclear Review Board reviews of the restart readiness assessment were effective in assessing station performance and recognizing areas that required additional station management attention. NRC Restart Action Plan 0350 Item B.4.5.a, "Evaluate Licensee's Restart Readiness Self-Assessment," is closed for the engineering area.

E8 Miscellaneous Engineering Issues

E8.1 (Closed) Violation 50-373/98005-12; 50-374/98005-12: Fuse List Discrepancies.

The team verified the corrective actions described in the licensee's response letter dated July 3, 1998, to be reasonable and complete. In particular, the team reviewed a sample of the fuse list discrepancy evaluation reports which documented the licensee's review of the identified problems. No deficiencies were noted.

E8.2 (Closed) Unresolved Item 50-373/97023-01; 50-374/97023-01: Floor and Equipment Drain Sump Level Monitoring Problems.

As discussed in Inspection Report 50-373/97023; 50-374/97023, the licensee determined that the ability of the drywell floor to accumulate water may be inconsistent with the UFSAR description and that the recurrent failure of the electronic sump level indication resulted in the leak detection system not meeting design basis requirements.

During this inspection, the team reviewed safety evaluation L98-219 which evaluated the inclusion of a worst-case holdup volume in the pathway for unidentified leakage to reach the drywell floor drain sump. In addition, the team reviewed General Electric Letter DRF-B13-01920-70, "Unidentified Leakage Detection Calculation," dated June 19, 1998, which documented General Electric's evaluation of the effects of leakage detection delays due to drywell holdup volumes.

Following that review, although a holdup volume in the drywell was created during plant construction due to allowable construction tolerances, this holdup volume did not adversely impact the ability to detect reactor coolant system (RCS) leakage. In addition, the team verified that the licensee had installed a modification to improve the reliability of installed sump level monitoring instrumentation.

E8.3 (Closed) LER 50-373/96012-01: Auxiliary Electric Equipment Room Found to Not Meet General Design Criteria 19 Habitability Requirements.

As discussed in Inspection Reports 50-373/96018; 50-374/96018; 50-373/97003; 50-374/97003 and LER 50-373/96012-00/01, the licensee identified that the AEER ventilation system had not been verified operable since initial plant construction because the licensee's pre-operational, post-modification, and surveillance testing programs failed to routinely verify that this system had the capability to maintain a positive pressure of 1/8-inch water column in the AEER.

To address this problem, the licensee completed 13 modifications to the AEER system to correct design deficiencies and perform repairs. The team reviewed and confirmed that the TS requirements for maintaining a positive pressure in the AEER had been met during the latest performance of surveillance test procedure LTS-400-17, "Control Room and Auxiliary Electric Equipment Room HVAC Isolation Damper Surveillance Smoke and Radiation Detection," Revision 7.

The NRC issued a letter dated September 29, 1997, which granted enforcement discretion in accordance with Section VII.B.6, "Violations Involving Special Circumstances," of the Enforcement Policy for this issue, and as a result, the NRC will not issue a notice of violation or propose a civil penalty in this case.

E8.4 (Closed) LER 50-373/96017-01/02: Main Control Room Found Outside of Design Basis Due to Inadequate TS.

As discussed in Inspection Reports 50-373/96018; 50-374/96018; 50-373/97003; 50-374/97003 and LER 50-373/96017-00/01/02, the licensee identified that the control room ventilation system had not been verified operable since initial plant construction. The licensee's pre-operational, post-modification, and surveillance testing programs failed to routinely verify that this system had the capability to maintain a positive pressure of 1/8-inch water column in the control room.

To address this problem, the licensee incorporated testing of all adjacent areas into the system surveillance test procedure and completed 28 system or component modifications to the VC system. The team reviewed and confirmed that the TS requirements for maintaining a positive pressure in the control room had been met during the latest performance of surveillance test procedure LTS-400-17, "Control Room and Auxiliary Electric Equipment Room HVAC Isolation Damper Surveillance Smoke and Radiation Detection," Revision 7.

The NRC issued a letter dated September 29, 1997, which granted enforcement discretion in accordance with Section VII.B.6, "Violations Involving Special Circumstances," of the Enforcement Policy for this issue, and as a result, the NRC will not issue a notice of violation or propose a civil penalty in this case.

E8.5 (Closed) LER 50-373/97002-00/01: Main Control Room and Auxiliary Electric Equipment Room Systems Found Outside of Design Basis.

As discussed in LER 50-373/97002-00/01, the licensee identified that during heavy snowstorms the outside air drawn in by the air-cooled condensers for the control room and AEER ventilation systems carried large amounts of snow which resulted, at times, in a high system differential pressure.

To address this problem, the licensee implemented DCPs 970314 and 970504 on the VE and VC systems to install an airflow bypass from the fan discharge to the fan inlet to be opened during winter months. These modifications reduced the capture/transport velocity for the entrained snow and still allowed total airflow to remain above the fan stall point. The team considered these corrective actions adequate to correct this system design deficiency. No concerns were identified.

10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires that measures shall be established to assure that conditions adverse to quality, such as deficiencies and nonconformances, are promptly identified and corrected. The failure to promptly identify and correct a historical problem regarding the receipt of high differential pressure alarms associated with the control room and AEER ventilation systems during heavy snow storms is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion XVI, were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-04).

E8.6 (Closed) LER 50-373/97004-00: Incomplete Understanding of Engineered Safety Features Filter Testing Requirements.

As discussed in LER 50-373/97004-00, during an SFPR of the VC/VE systems, the licensee identified that the procedures used to check required flow measurements, verify heater performance, and perform in-place adsorber leakage testing were not in verbatim compliance with TS 3.7.2, "Control Room and Auxiliary Electric Equipment Room Emergency Filtration System." This review also identified similar concerns with the Standby Gas Treatment System and TS 4.6.5.3, "Standby Gas Treatment System."

During this inspection, the team determined that on April 27, 1998, the NRC approved and issued TS Amendment 125 (Unit 1) and TS Amendment 110 (Unit 2) for TS 4.6.5.3; and on May 13, 1998, approved and issued TS Amendment 126 (Unit 1) and TS Amendment 111 (Unit 2) for TS 4.7.2. The team confirmed that required testing had been incorporated into surveillance test procedures and had been satisfactorily completed for the VC/VE filter trains.

The failure to perform testing as discussed above and as required by TSs 4.7.2 and 4.6.5.3 was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-05).

E8.7 (Closed) LER 50-373/97008-00: Rod Block Monitor Not Enabled at Power Level Required by TS.

As discussed in LER 50-373/97008-00, during an SFPR of the neutron monitoring system, the licensee determined that calibration procedures for the Unit 1 and Unit 2 Rod Block Monitor (RBM) did not verify that the RBM would be enabled prior to attaining 30 percent core thermal power as required by TS 3.1.4.3, "Rod Block Monitor." Upon further investigation, the licensee determined that on four occasions between 1988 and 1993, the RBM reference downscale bypass functions were calibrated in the decreasing power direction with resulting setpoints in the increasing direction which may have resulted in the RBM being enabled between 30.2 and 31.68 percent core thermal power, vice the 30 percent power TS requirement.

During this inspection, the team determined that the licensee revised LIS-NR-105A and LIS-NR-105B to correct the error in the method of calibrating the Rod Block Monitor for the bypass function. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The events as described above constitute an example where this requirement was not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-06).

E8.8 (Closed) LER 50-373/97012-00: Low-Low Setpoint Function of Main Steam Safety Relief Valves Not Tested.

As discussed in LER 50-373/97012-00, the licensee identified that surveillance test procedures for the Unit 1 and Unit 2 Low-Low-Setpoint (LLS) system did not verify that the LLS function did not interfere with the operation of the safety relief valves when actuated via the automatic depressurization system (ADS) as required by TS. Specifically, TS 4.4.2.2 required that a channel calibration of the LLS circuit be performed. The surveillance test requirements were also written to ensure that the LLS function did not interfere with the ADS operation. However, licensee procedures failed to verify this function.

During the inspection, the team determined that the licensee revised LIS-NB-114, LES-NB-101A, and LES-NB-101B to include steps to verify that the low-low setpoint did not interfere with the ADS actuation of relief valves. The team also verified that this testing was satisfactorily completed for Unit 1. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits specified in applicable design documents. The issue described above is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion XI were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-07).

E8.9 (Closed) LER 50-373/97014-00: Drywell/Suppression Pool Vacuum Breaker Isolation Valve Testing Errors.

As discussed in LER 50-373/97014-00, the licensee identified that manual drywell/suppression pool vacuum breaker isolation valves 1(2)PC002A-D and 1(2)PC003A-D stem seals (packing) were not tested as required by 10 CFR Part 50, Appendix J.

As part of their corrective actions, the licensee completed an evaluation of all primary containment penetrations and identified additional examples similar to the one identified above. To address these deficiencies, the licensee planned to develop resolutions to ensure that all subject valve packing was properly tested.

During this inspection, the team verified that procedure revisions were implemented to address the specific deficiencies discussed above. In addition, the team verified that the licensee revised the appropriate testing procedures to include the packing for the drywell/suppression pool vacuum breaker isolation valves. No deficiencies were identified.

10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," requires that a program be established for leak testing the primary reactor containment and related systems and components penetrating the primary containment pressure boundary. The issue described above is an example where the requirements of 10 CFR Part 50, Appendix J were not met and was a violation. However,

this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-08).

E8.10 (Closed) LER 50-373/97016-00: Rod Block Monitor (RBM) Functions Not Completely Tested.

As discussed in LER 50-373/97016-00, the licensee identified that the “inoperable” and “bypass” functions of the Unit 1 and Unit 2 RBM were not adequately functionally tested as required by TS. The following summarizes the problems identified:

- Inadequate RBM Bypass Function Testing

During surveillance testing prior to startup, with the plant at less than 30 percent power, the RBM is automatically bypassed. To allow verification of the trip functions, a relay associated with the RBM channel bypass is removed. However, upon completion of testing, after the relay is re-installed, no additional testing was performed to verify that the relay would function properly.

- Inadequate Testing of the RBM Inoperable Function

A review of past procedures identified that the RBM gain channel circuits were tested during plant pre-operational tests, but had not been tested since that time.

- Inadequate Channel Calibration Testing

Surveillance test procedures failed to verify the calibration of the local power range monitor (LPRM) signal averaging circuit, the gain change circuit, and the power reference signals from the associated average power range monitors (APRMs).

To address the problems identified above, the licensee revised functional testing procedures to incorporate testing of the RBM bypass relay and the inoperable function associated with the gain channel logic. In addition, the licensee revised RBM calibration procedures to incorporate calibration of the LPRM averaging and gain change circuits; and calibration verification of the APRM signals sent to the associated RBM. The team reviewed these procedures during the inspection. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits specified in applicable design documents. The issue described above is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion XI were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-09).

E8.11 (Closed) LER 50-373/97020-00: Recirculation Flow Converter Calibration and Functional Testing Deficiencies.

As discussed in LER 50-373/97020-00, the licensee identified that the calibration and functional test procedures for the Unit 1 and Unit 2 recirculation flow converters did not verify overlap to the APRM channels and demonstrate operability of the flow reference signal low value gate to the APRM channels. As a result, the testing was inadequate and did not meet TS requirements. In addition, the licensee identified that during the testing, associated power supplies were adjusted prior to recording all as-found data.

The licensee revised surveillance testing procedure LIS-RR-101 to correct the testing deficiencies identified above. The team reviewed this revised procedure and verified that the revision adequately corrected the identified problem. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits specified in applicable design documents. The issue described above is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion XI were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-10).

E8.12 (Closed) LER 50-373/97021-01: Undrainable Low Areas in Drywell Floor Resulting in Degradation of the Leak Detection System.

The subject of this LER is being tracked by Unresolved Item 50-373/97023-01; 50-374/97023-01. Therefore, LER 50-373/97021-01 is administratively closed.

E8.13 (Closed) LER 50-373/97023-00: Inadequate Channel Functional Testing of Reactor Protection System Due to Procedure Deficiency.

As discussed in LER 50-373/97023-00, inadequacies in the TS surveillance test procedures associated with the channel functional tests of the turbine stop/control valve trip logic and the MSIV trip logic were identified. Specifically, the licensee identified that surveillance test procedures failed to test the reactor protection contacts associated with various trip logics at less than 30 percent power since these contacts were bypassed when the testing was performed.

To address the problems identified above, the licensee revised applicable surveillance testing procedures to correct the deficiencies identified above. The team reviewed these revised procedures and verified that the revisions adequately corrected the identified problems. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits specified in applicable design documents. The issue described

above is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion XI were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-11).

E8.14 (Closed) LER 50-373/97024-00: Missed TS Surveillance and Inadequate Post-Maintenance Testing of the Reactor Manual Control System (RMCS).

As discussed in LER 50-373/97024-00, the licensee identified inadequacies in the post-maintenance testing of transponder card replacements and inadequacies in the control rod drive (CRD) scram accumulator instrument calibrations. The following summarizes the problems identified:

- Transponder Card Replacement Inadequacies

Procedure LIP-GM-950, "RMCS Transponder Card Replacement and Repair Documentation," failed to address the functional testing requirements of TS 4.1.3.5.b when replacing transponder cards. Although the procedure performed post-maintenance testing, it failed to validate the channel functional test as required by the TS.

- CRD Scram Accumulator Instrumentation Calibration Inadequacy

Procedure LIS-RD-102(202), "Unit 1(2) Control Rod Scram Accumulator Instrumentation Calibration," allowed the accumulator annunciator alarm to be defeated in the control room prior to conducting the surveillance. Therefore, not all of the logic was tested as required by TS.

During this inspection, the team determined that LIP-GM-950 was revised to correct the identified deficiencies. In addition, the team determined that LIS-RD-102(202) was deleted and the surveillance test requirements, including revisions to correct the errors discussed above, were incorporated into LIP-RD-507A, Revision 0, dated December 3, 1997 and LIP-RD-507B, Revision 0, dated December 3, 1997. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits specified in applicable design documents. The issue described above is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion XI were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-12).

E8.15 (Closed) LER 50-373/97026-00: Inadequate Channel Functional Testing of RMCS Refueling Interlock.

As discussed in LER 50-373/97026-00, the licensee identified inadequacies in the TS surveillance test procedures for the channel functional tests of the refueling interlocks and other rod block surveillance test procedures.

During this inspection, the team determined that operating surveillance test LOS-NR-R1, "Logic System Functional Test for the Reactor Manual Control System Rod Block Logic," was revised to test all rod block monitor logic. In addition, operating surveillances LOS-NR-W1, "SRM [source range monitor] Detector Not Full in Rod Block Functional Test," and LOS-NR-W2, "IRM [intermediate range monitor] Detector Not Full in Rod Block Functional Test," were revised to attempt to withdraw a control rod that should be prohibited by the block generated by moving the SRM/IRM detectors. Finally, to address refueling issues, the licensee revised LaSalle refueling procedures LFS-100-1, LFS-100-2, LFS-100-3. The team reviewed these procedures and verified that these revisions were adequate. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits specified in applicable design documents. The issue described above is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion XI were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-13).

E8.16 (Closed) LER 50-373/97031-00/01/02: Leak Detection Area Temperature Calculation Error.

As discussed in LER 50-373/97031-00/01/02, the licensee identified that calculations that form the analytical basis for the leak detection area temperature and differential temperature isolation safety setpoints used a steam flash fraction that was not limiting in all cases.

To address the deficiencies identified above, the licensee had planned or completed the following corrective actions:

- Analytical limit and setpoint calculations would be completed prior to Unit 1 restart to document the areas which required temperature-based leak detection monitoring and the reasons that other areas did not require monitoring, or other approved leak detection methods.
- A revision to the applicable leak detection TS would be completed prior to Unit 1 restart.
- Modifications to the leak detection equipment would be completed prior to Unit 1 restart.

During this inspection, the team determined that the licensee issued calculation L-001324, "Area and Differential Temperature Design Basis Calculations for Reactor Coolant Leak Detection," Revision 1, dated November 13, 1997; calculation L-001420, "Unit 1 RWCU [Reactor Water Cleanup] Room Setpoint Margin Analysis and Loop Accuracy," Revision 1, dated November 19, 1997; and calculation L-001443, "Reactor Water Cleanup High Flow Isolation Error," Revision 0, dated November 21, 1997, to address the issues identified above.

In addition, the licensee submitted a TS revision to the NRC. This amendment was approved July 6, 1998.

Also, the leak detection equipment was modified under DCP 9700532. This modification was required for the RWCU pump rooms and associated valve room following a design modification which restored a hot suction to the RWCU pumps. Additionally, some leak detection equipment that was no longer used was eliminated. No deficiencies were identified.

The NRC issued a letter dated May 9, 1998, which granted enforcement discretion for this issue in accordance with Section VII.B.2, "Violations Identified During Extended Shutdowns or Work Stoppages," of the "General Statement of Policy and Procedures for NRC Enforcement Actions," (Enforcement Policy), NUREG-1600. As a result, the NRC will not issue a Notice of Violation or propose a civil penalty in this case.

E8.17 (Closed) LER 50-373/97033-00/01: Reactor Building HELB [High Energy Line Break] Bounding Temperature Potentially Nonconservative.

As discussed in LER 50-373/97033-00/01, during engineering reviews for the RWCU pump and piping replacement design change, the licensee identified that HELB calculations for the existing RWCU design may not have been conservative in determining the bounding temperature in the reactor building following a HELB. Specifically, the licensee identified that the initial HELB calculation performed during plant initial licensing limited the RWCU HELB blowdown event to a time interval that was less than the actual containment isolation valve closure time.

To address the problems identified above, the licensee planned the following corrective actions:

- Prior to Unit 1 restart, RWCU HELB and related environmental qualification (EQ) temperature basis calculations that consider proper leak detection and isolation valve closure times would be completed.
- Prior to Unit 1 restart, other LaSalle HELB and related EQ temperature basis calculations would be reviewed and updated as required to determine the potential impact of leak detection and valve isolation time on the calculated environmental bounding condition specified in the UFSAR.
- Prior to Unit 1 restart, the potential impact of the HELB calculations on equipment qualification and other potential plant impacts will be determined. Affected EQ calculations and the EQ list will be updated as required.
- Various plant modifications and TS changes would be implemented to ensure compliance with the original EQ design basis.

During this inspection, the team verified that the planned corrective actions identified above, including modifications and TS changes for ambient temperature, flow, and differential temperature setpoints and channels for applicable isolation actuation instrumentation, were completed. Detailed EQ calculations for affected areas of the reactor building and identification of affected equipment were also performed. In addition, the team

verified that selected unverified assumptions used to perform the design basis calculations had been identified and controlled and the basis for the assumptions assured as part of the modification process to implement the TS changes to the setpoints in TS Table 3.3.2-2. No deficiencies were identified.

The NRC issued a letter dated May 9, 1998, which granted enforcement discretion for this issue in accordance with Section VII.B.2, "Violations Identified During Extended Shutdowns or Work Stoppages," of the "General Statement of Policy and Procedures for NRC Enforcement Actions," (Enforcement Policy), NUREG-1600. As a result, the NRC will not issue a Notice of Violation or propose a civil penalty in this case.

E8.18 (Closed) LER 50-373/97045-00: Post-Accident Monitoring System Outside Design Basis.

As discussed in LER 50-373/97045-00, the licensee determined by calculation and review of maintenance history that the thermal EQ lives had expired for several components located in the Unit 1 and Unit 2 post-accident monitoring system.

To address the problem identified above, the licensee planned the following corrective actions:

- The EQ life calculations for the affected components would be revised.
- Prior to Unit 1 restart, the affected components would be replaced.
- The EQ binder would be updated to reflect the correct qualification for the replacement components.

During this inspection, the team determined that the licensee revised the EQ Life Calculation for the affected components. The revision to EQ calculation L-001530 reflected the higher temperatures inside the panel dictating a shortened EQ life expectancy. Additionally, the affected components were replaced. The team reviewed documentation associated with the completion of these actions. No deficiencies were identified.

10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that the applicable regulatory requirements and the design basis are correctly translated into specifications, drawings, procedures, and instructions. The failure to adequately calculate the EQ life of components associated with the post-accident monitoring system is an example where the requirements of 10 CFR Part 50, Appendix B, Criterion III were not met and was a violation. However, this non-repetitive, licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (NCV 50-373/98015-14).

E8.19 (Closed) LER 50-373/97046-00/01: Turbine Building Ventilation Exhaust Tunnel Pressurization Due to HELB.

As discussed in LER 50-373/97046-00/01, the preliminary results of an engineering analysis determined that in the event of a Main Steam HELB, the turbine building ventilation (VT) isolation dampers would not close fast enough to prevent the pressure from exceeding the pressure retaining capability of the walls, floors, and ceilings, that separates

the turbine building ventilation exhaust tunnel from the safety-related HPCS electrical switchgear room.

To address the deficiencies identified above, the licensee planned the following corrective actions:

- The loads for affected concrete structures would be determined and, if required, the necessary actions completed to provide reinforcement prior to Unit 1 restart.
- The UFSAR would be revised to include the turbine building ventilation system dampers failure mode and the affect of a failure in the event of a HELB.
- Prior to Unit 1 restart, the safety-related masonry block wall will be reinforced to ensure that the wall structure would remain intact during a HELB in the main steam tunnel.
- Prior to Unit 1 restart, the four safety-related cables for the radiation monitoring system would be re-routed.

During this inspection, the team reviewed the corrective actions discussed above and conducted walkdowns with licensee personnel. The following was identified:

- The licensee issued DCP 9800007 to reinforce two masonry block walls in the auxiliary building in the Unit 1 HPCS switchgear room. In addition, Exempt Change Notices (ECN) 001447E and 001447E01 were issued which deleted and/or relocated conduits which interfered with the supporting steel. The team walked down this modification with licensee personnel and verified that the modification was acceptable. No concerns were identified.
- Subsequent licensee calculations determined that the masonry walls which form the VT exhaust plenum would also fail due to the computed HELB pressure. Several safety-related and non-safety-related wall panels were impacted by this pressure. Reinforcement of these walls due to their span, height, and the number of field interferences was impractical. However, based on a review of equipment in the area, the licensee concluded that the postulated failure of the non-safety-related masonry walls would not impact or affect any safety-related equipment with the exception of cables associated with radiation detectors for the VC system. To address this issue, the licensee issued ECNs 001455E and 001455E-02 to re-route these cables. The team walked down these areas with licensee personnel and visually verified that additional safety-related equipment was not present in the vicinity of the masonry walls. No deficiencies were identified.
- For the remaining issues, the team verified that NTS items had been identified to track those items for closure.

The NRC issued a letter dated May 9, 1998, which granted enforcement discretion for this issue in accordance with Section VII.B.2, "Violations Identified During Extended Shutdowns or Work Stoppages," of the "General Statement of Policy and Procedures for NRC Enforcement Actions," (Enforcement Policy), NUREG-1600. As a result, the NRC will not issue a Notice of Violation or propose a civil penalty in this case.

VI. Management Meeting

X1 Summary of MC 0350 Restart Action Items

The Restart Readiness Assessment Team reviewed selected items from the NRC Inspection Manual Chapter 0350 Restart Action Plan. The following list indicates NRC Restart Action Plan Items which are discussed in the report:

- Item B.4.5.a, "Evaluate Licensee's Restart Readiness Self-Assessment," is discussed in Sections O7.3, M7.1, and E7.1. This item is closed.
- Item C.2.2.b, "Demonstrated Expectation of Adherence to Procedures," is closed in Section O3.1.
- Item C.2.3.c, "Adequate Engineering Support as Demonstrated by Timely Resolution of Issues," is closed in Section E2.5.
- Item C.3.1.k, "Procedure Usage/Adherence," is closed in Section O3.1.
- Item C.3.3.b, "Level of Formality in the Control Room," is closed in Section O1.4.
- Item C.3.3.d, "Control Room/Plant Operator Awareness of Equipment Status," is closed in Section O1.4.
- Item C.3.3.e, "Adequacy of Plant Operating Procedures," is closed in Section O3.1.
- Item C.3.3.f, "Procedure Usage/Adherence," is closed in Section O3.1.
- Item C.3.3.g, "Log Keeping Practices," is closed in Section O1.2.
- Item C.4.a, "Operability of Technical Specification Systems," is closed in Section E2.1.
- Item C.4.b, "Operability of Required Secondary and Support Systems," is closed in Section E2.2.
- Item C.4.d, "Adequacy of System Lineups," is closed in Section O2.1.
- Item C.4.e, "Adequacy of Surveillance Tests/Test Program," is closed in Section M2.2.
- Item C.4.f, "Significant Hardware Issues Resolved," is closed in Section E2.3.
- Item C.4.g, "Adequacy of the Power Ascension Testing Program," is closed in Section O7.2.
- Item C.4.I, "Technical Issues Which Would Preclude Restart Are Managed by the Licensee," is closed in Section E2.4.

X2 Exit Meeting Summary

The inspectors presented the results of these inspections to licensee management listed below at an exit meeting on July 21, 1998. The licensee acknowledged the findings presented. The inspectors asked the licensee if any materials examined during the inspection should be considered proprietary. The licensee identified none.

PARTIAL LIST OF PERSONS CONTACTED

ComEd

- *F. Dacimo, Site Vice President
- *T. O'Connor, Plant Manager
- *C. Berry, Chief of Staff
- *S. Smith, Restart Manager
- *D. Farr, Operations Manager
- G. Campbell, Engineering Manager
- *W. Riffer, Quality and Safety Assessment Manager
- *G. Heisterman, Maintenance Manager
- *D. Sanchez, Site Training Manager
- D. Boone, Site Support Manager
- *H. Pontious, Acting Regulatory Assurance Manager
- *P. Barnes, Restart Plan Manager
- *R. Stachniak, Corrective Action Program Manager
- R. Palmieri, System Engineering Supervisor

* Present at exit meeting on July 21, 1998.

INSPECTION PROCEDURES USED

IP 37551	Onsite Engineering
IP 40500	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
IP 61726	Surveillance Observation
IP 62707	Maintenance Observation
IP 71707	Plant Operations
IP 71750	Plant Support

ITEMS OPENED AND CLOSED

Opened

50-373/98015-01	IFI	Fire Protection Ionization Detector Design Basis
50-373/98015-02	VIO	Fire Protection System Valve Testing
50-373/98015-03	IFI	Fire Protection Deluge Valve Testing
50-373/98015-04	NCV	Control Room and AEER Outside Design Basis
50-373/98015-05	NCV	Engineered Safety Feature Filter Testing Deficiencies
50-373/98015-06	NCV	RBM Not Enabled at Power Required By TS
50-373/98015-07	NCV	Low-Low Setpoint Function of Main Steam Safety Relief Valve Not Tested
50-373/98015-08	NCV	Drywell/Suppression Pool Vacuum Breaker Testing
50-373/98015-09	NCV	RBM Functions Not Completely Tested
50-373/98015-10	NCV	Recirculation Flow Converter Calibration/Testing
50-373/98015-11	NCV	Inadequate Channel Functional Testing of RPS
50-373/98015-12	NCV	RMCS Testing Deficiencies
50-373/98015-13	NCV	Inadequate Testing of RMCS Refueling Interlocks
50-373/98015-14	NCV	Post-Accident Monitoring System Design Basis

Closed

50-373/98005-12; 50-374/98005-12	VIO	Fuse List Discrepancies
50-373/97023-01; 50-374/97023-01	URI	Floor/Equipment Drain Sump Monitoring Problems
50-373/96012-01	LER	AEER Found Not to Meet General Design Criteria 19 Requirements
50-373/96017-01/02	LER	Main Control Room Found Outside of Design Basis
50-373/97002-00/01	LER	Control Room and AEER Systems Outside Design Basis
50-373/97004-00	LER	Engineered Safety Features Filter Testing Deficiencies
50-373/97008-00	LER	RBM Not Enabled at Power Required By TS
50-373/97012-00	LER	Low-Low Setpoint Function of Main Steam Safety Relief Valve Not Tested
50-373/97014-00	LER	Drywell/Suppression Pool Vacuum Breaker Testing
50-373/97016-00	LER	RBM Functions Not Completely Tested
50-373/97020-00	LER	Recirculation Flow Converter Calibration/Testing

50-373/97021-01	LER	Undrainable Low Areas in Drywell Floor Resulting in Degradation of the Leak Detection System
50-373/97023-00	LER	Inadequate Channel Functional Testing of RPS
50-373/97024-00	LER	RMCS Testing Deficiencies
50-373/97026-00	LER	Inadequate Testing of RMCS Refueling Interlocks
50-373/97031-00/01/02	LER	Leak Detection Area Temperature Calculation Error
50-373/97033-00/01	LER	Reactor Building HELB Bounding Temperatures
50-373/97045-00	LER	Post-Accident Monitoring System Design Basis
50-373/97046-00	LER	Pressurization of Turbine Building Exhaust Tunnel
50-373/98015-04	NCV	Control Room and AEER Outside Design Basis
50-373/98015-05	NCV	Engineered Safety Features Filter Testing Deficiencies
50-373/98015-06	NCV	RBM Not Enabled at Power Required By TS
50-373/98015-07	NCV	Low-Low Setpoint Function of Main Steam Safety Relief Valve Not Tested
50-373/98015-08	NCV	Drywell/Suppression Pool Vacuum Breaker Testing
50-373/98015-09	NCV	RBM Functions Not Completely Tested
50-373/98015-10	NCV	Recirculation Flow Converter Calibration/Testing
50-373/98015-11	NCV	Inadequate Channel Functional Testing of RPS
50-373/98015-12	NCV	RMCS Testing Deficiencies
50-373/98015-13	NCV	Inadequate Testing of RMCS Refueling Interlocks
50-373/98015-14	NCV	Post-Accident Monitoring System Design Basis

LIST OF ACRONYMS USED

ADS	Automatic Depressurization System
AEER	Auxiliary Electric Equipment Room
APRM	Average Power Range Monitor
AR	Action Request
CRD	Control Rod Drive
CFR	Code of Federal Regulations
CNRB	Corporate Nuclear Review Board
CSCS	Core Standby Cooling System
DCP	Design Change Package
DEL	Degraded Equipment List
DG	Diesel Generator
DRP	Division of Reactor Projects
EA	Equipment Attendant
ECCS	Emergency Core Cooling System
ECN	Exempt Change Notice
EHC	Electro-Hydraulic Control
EQ	Environmental Qualification
ER	Engineering Request
FIN	Fix-It-Now
GE	General Electric
HELB	High Energy Line Break
HLA	Heightened Level of Awareness
HPCS	High Pressure Core Spray
HVAC	Heating, Ventilation, and Air Conditioning
IFI	Inspection Followup Item
IOPR	Integrated Operations Performance Review
IRM	Intermediate Range Monitor
IRS	Issue Resolution Sheet
L1F35	LaSalle Unit 1 Forced Outage Number 35
LAP	LaSalle Administrative Procedure
LCO	Limiting Condition for Operation
LEP	LaSalle Electrical Maintenance Procedure
LER	Licensee Event Report
LES	LaSalle Electrical Surveillance
LGP	LaSalle General Procedure
LIP	LaSalle Instrument Maintenance Procedure
LIS	LaSalle Instrument Surveillance
LLP	LaSalle Special Procedure
LLS	Low-Low Setpoint
LOP	LaSalle Operating Procedure
LOS	LaSalle Operating Surveillance
LPCI	Low Pressure Coolant Injection
LPCS	Low Pressure Core Spray
LPRM	Local Power Range Monitor
LPSP	Low Power Setpoint
LST	LaSalle Special Test
LTS	LaSalle Technical Surveillance
MSIV	Main Steam Isolation Valve

NCV	Non-Cited Violation
NLO	Non-Licensed Operator
NRR	Nuclear Reactor Regulation
NSP	Nuclear Station Procedure
NSWP	Nuclear Station Work Procedure
NSO	Nuclear Station Operator
NTS	Nuclear Tracking System
OOS	Out-of-Service
OSR	Onsite Review
PDR	Public Document Room
PIF	Problem Identification Form
PORC	Plant Operations Review Committee
RBM	Rod Block Monitor
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RIRC	Restart Issues Review Committee
RMCS	Reactor Manual Control System
RSCS	Rod Sequence Control System
RWCU	Reactor Water Cleanup
SBLC	Standby Liquid Control
SCC	Scope Control Committee
SFPR	System Functional Performance Review
SM	Shift Manager
SMRC	Senior Management Review Committee
SRM	Source Range Monitor
SRRB	System Readiness Review Board
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
US	Unit Supervisor
VC	Control Room Ventilation
VDC	Volts Direct Current
VE	Auxiliary Electrical Equipment Room Ventilation
VIO	Violation
VT	Turbine Building Ventilation
WC	Work Control
WM	Work Management
WR	Work Request